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Delphi and the Oracle

By William Macy Stanton

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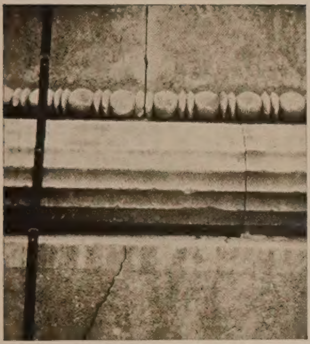
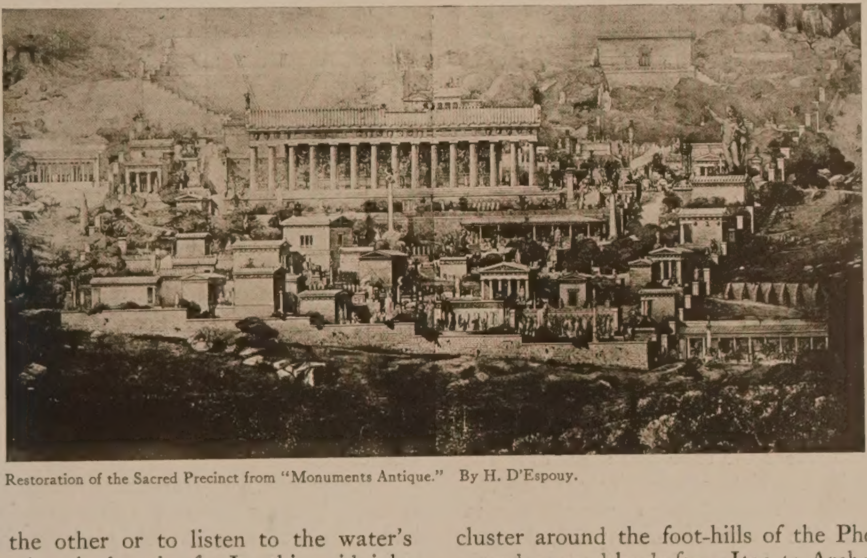


View of base shown in Detail "A." See Plate CXXI.

THE stars shone bright through the clear Mediterranean air as we sat in the little open square of Patras, the western gate of the Peloponnesus, one summer night in 1914. We had tickets for the night-boat across the Gulf of Corinth and were making use of nature's well-appointed waiting-room while the lateness of our boat's arrival increased; late because some shepherd's flock had bolted when it came to the gang-plank at a previous port or an influential Greek had delayed the boat while he turned one more business deal and had one more glass of their resin-tasting wine. Time was of no consequence to the captain of this many-burdened ship, who waited with equal patience for the frightened sheep or the political leader of his modern country.



Restoration of the Sacred Precinct from "Monuments Antique." By H. D'Espouy.

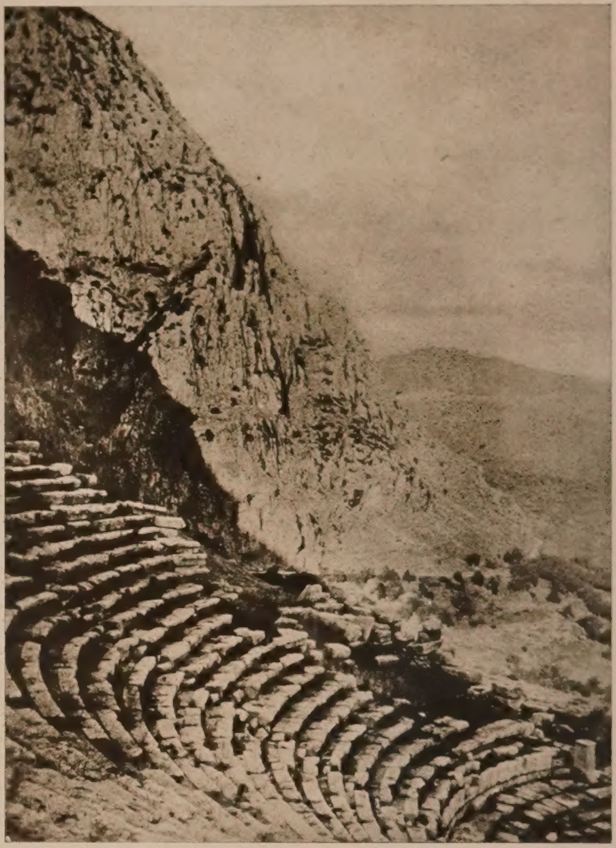
The crowd in the square became smaller as the hour grew later until only a few remained to hear the village trolley-car bump its periodical way from one edge of town to the other or to listen to the water's endless splashing on the single wharf. In this midnight quietude one longed to turn back the wheels of time and to live again in those days when Greece was the centre of the world, and to feel that the little band of fellow passengers were men of the golden days. Why not? There at the table next sat Phidias who had left Bassæ and was returning to Athens. He had come overland by the way of Olympia and now waited for a good wind to sail across to Cirrha on his way home. Here Praxiteles might have stopped to refresh himself on his way, from his final work on the Hermes in the Temple of Hera, to consult the Pythian oracle or to take up a new commission in the embellishment of the shrine at Delphi. Perhaps neither Phidias nor Praxiteles but one of those unknown artists of Hellenic civilization whose cunning hand wrought for us some fragment of that pure art that inspires with its very beauty.

The whistle of a steamship met our ears, not the flapping of sails nor the splash of oars, and we realized that the Greeks gathered around us had lost all the refinement, culture, and skill that enveloped their forefathers, and that we stood in the midst of petty merchants, shepherds, and money-changers who, symbolic of the present race, with a serene and sterling inheritance, showed nothing to-day but the solidified art of their ancestors that has stood two thousand years and now speaks to the world of the moderns' failure.

After a dangerous and uncertain trip in a rowboat from the shore to the steamship in the outer harbor we discovered our first-class accommodations consisted of a hard wooden bench in the stern of the boat, while freight and the sleek, well-fattened sheep occupied the midship sections.

In the early morning hours we found ourselves at Itea, the modern seaport for Delphi. The little town is almost lost in large olive-orchards that cluster around the foot-hills of the Phedriades. A modern macadam road leads from Itea to Archova and provides the only access to the mountains and Delphi. During the ride up the winding mountain road many small hamlets and farmhouses are passed with their respective quota of ferocious, wolf-like dogs that make foot travel in Greece both uncomfortable and dangerous. After seven miles of steady climbing we reached modern Delphi with its two or three hotels and few scattering houses, all of which were built by the

The lower group of temples.


View from the theatres.

French expedition in 1893 when they moved the town from the site of the sacred precinct to allow the excavations to be carried on unimpeded.

There is nothing about this sleepy little village that gives the impression that we are standing less than half a mile from the site of the most sacred shrine of Greek antiquity. Rather we are struck with the stupidity of the people and the complete abandonment of the whole place. Children, chickens, and goats intermingle as members of one family; men bask in the sun or sit in the shade of a tree smoking the great water-cooled pipe of their own contrivance, and nowhere is there a sign of industry or ambition.

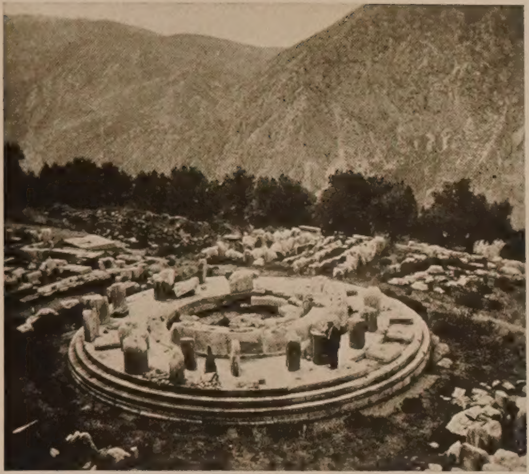
The early history of ancient Delphi is shrouded in the mysterious uncertainty of numerous legends, and it is not until the beginning of the sixth century B. C. that we are able to trace its history with any degree of accuracy. The generally accepted legend tells us that in this fold of the Phedriades there was a fissure, or cave, in the rock from which issued a gas, a breath of which caused a person to give forth inspiring exaltations, but that Earth had placed a fierce dragon there to protect the cave and allow only the oracle, personified first by a preistess from Crete, to experience the magic inspiration. Through her the world was to be told of the future. In the course of time Apollo, the god of the Ideal Arts, fought and slew the dragon and to purify himself ran to the valley of Tempe and returned crowned with a wreath of the sacred laurel. From that time on it was Apollo who was the protecting deity of the sacred precinct. A legend further says that Celæno had a son by Apollo and called his name Delphus, hence the name Delphi. But Delphus had a son, Pythes, who became king and called the town Pytho. These two names, Delphi and Pytho, are used throughout antiquity for this home of the oracle. In the Iliad and Odyssey the only mention is to the "Rocky Pytho."

Whatever the origin of the place or name, the fact remains that if we walk a little way from the modern village the road leads us around a projecting crag of the mountain and there opens up before us the ruins of ancient Delphi. No artist can paint the picture and no poet sing the praise of the real beauty of this time-honored vista in the snow-capped mountains of northern Greece. When the afternoon sun throws the shadows of the taller peaks across the precinct and lightens up the purple of the bare-sloped mountains across the valley, a picture is wrought that is soul-inspiring and reminds us again of the unequalled grandeur of the sites of the ancient Greek cities.

This is our first impression on reaching Delphi. But the impression will be deepened and enriched when the ruins are studied in detail, and a history of the shrine, as it grew and flourished, produces an atmosphere around the present reminder of its glorious past. So let us pause a moment and recall the development of the home of the Pythian oracle.

Pausanias, who travelled through Greece in the second century A. D., pictures the first temple of Apollo in wood, built of olive-branches carried from the valley of Tempe. This first crude hut was replaced by one built of wax and wings of bees, which was replaced by a temple of brass. Whether these legends are true or not is of very little importance, but we do know that a stone temple preceded the one now in ruins.

In 373 B. C. an earthquake destroyed the temple and laid low many of the other buildings and statues, but the Greek world at that time was firmly held together by the common faith. The power and sacredness of the Delphic



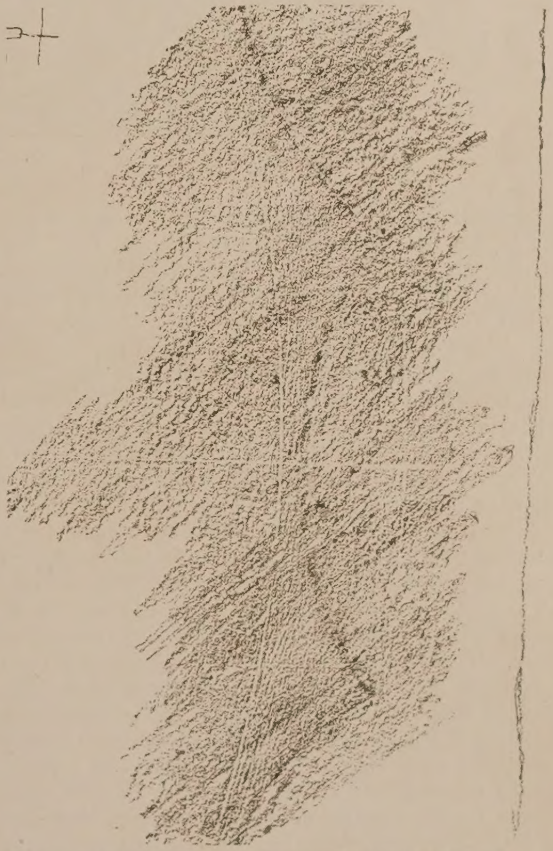
Ruins of the Tholos, shown in Detail "B." See Plate CXXI

oracle was so wide-spread that contributions were sent in from the mother country and all the colonies on the border of the Mediterranean until a great fortune was available to rebuild the temple. Spentharus, a Corinthian, was employed as the architect and there was erected one of the finest Doric temples of antiquity, built of white marble over the foundations of the earlier structure. This temple, dedicated to Apollo, was the largest but by no means the only edifice in the sacred precinct. Individuals, cities, and states consulted the oracle previous to all of their important undertakings. They followed with a religious exactness every detail of its command and when fortune favored them in their various pursuits they felt duty-bound to send to Delphi an offering to Apollo. For example, when Athens won the victory at Marathon, the Athenians built a treasury at Delphi, because they felt that Apollo had delivered them from their enemies, and after the battle of Plataæ the Greeks in common made a votive offering of a gold dragon standing on a bronze tripod. In some cases states or cities were told by the oracle that they must either pay a certain part of all the plunder, from their enemies, to Apollo and turn over a tenth part of their earnings or else the protecting hand of Apollo would be withdrawn. So the treasury of the Sicyonians was built, and into this treasury was placed, each year, one-tenth of the gold-mine on the island of Siphnos. We are told that these people grew tired and left off the tribute, and that the sea encroached and swept away their mines. It was this almost pagan fear of the wrath of the gods that held the people and the states to their vows. As a result there accumulated at Delphi a wealth of gold and beautiful works of art unparalleled in history, for all the Greek world sent to its favorite deity the riches of the land.

During the festivals which occurred at Delphi, at regular intervals for many years, athletic contests similar to the Olympian games were held. It was a custom for the winning athletes to erect in their own memory a statue as an offering to Apollo and for the victorious participant in the musical contests to leave his prize to adorn the house of the god. With all the offerings from so many sources, it is not difficult to picture this great natural outdoor museum filled to overflowing with monuments, statues, and small edifices, making the whole enclosure a brilliant mass of form and color.

The precinct of Delphi had belonged to all of the states and had been considered a common sanctuary, but jealousy arose and we find the states fighting a long, sacred war for the possession of the precinct, looting the treasury of gold in order to carry on the war. All were willing, however, to unite against a common enemy—the Celts. Apollo showed again a protecting hand. We are told by Pausanias that an earthquake shook stones loose on the mountains, causing avalanches that killed many of the enemy. There was such thunder that the orders of the officers could not be heard. That night after the Greeks had driven the enemy back, a great snow fell and many thousands of the Celts perished. The history from this time on records almost continuous sacking and pillaging of the temple, but it remained for the Romans to do the most devastating part, and the desecration of the shrine was culminated when Nero carried away five hundred bronze statues. What destruction man was not able to accomplish landslides and earthquakes did, leaving the marble buildings in ruins. Through the Middle Ages these ruins were used as stone quarries and lime-kilns, and the final débris was completely covered by landslides and the entire site was buried. Upon this fill there grew up a miserable village of dilapidated one-story huts. These are the conditions that French expedition from the school in Athens found when they started to excavate in 1893.

As we stroll to-day through the ruins we see only a vestige of Delphi's ancient glory, only a ground plan of the citadel that was so dear to the art-loving Greek. Only one building stands to-day and that is the "Treasure House of the Athenians." There is remaining, however, enough to thrill the visitor and draw him to seek, if but from some small detail, the Greek refinements and the exactness of the workmanship. Up a steep incline, by curves and flights of steps, flanked on either side by walls and bases of statues, the way leads past the foundations of treasuries to the open



Rubbing direct from base of Tholos, showing methods used by Greek workmen in locating columns. The lines were scratched in the marble. (Rubbing half actual size.)

space in front of the temple of Apollo. Not a stone of this noble edifice stands, but strewn all about are fragments of column drums, capitals, and the Doric cornice, almost lost in weeds and overrun with lizards. Above the temple on the upper terrace other fragments tell of the beauty of the single statues or the offerings in large groups.

The theatre is reached by a long flight of marble steps flanked on either side by honeycombed walls. The seats are well preserved and the whole contour of the theatre is easily traceable. This location is one of the most magnificent parts of all Delphi. The theatre is cut in the natural slope of the rock and from it one looks out over the temple of Apollo and the other buildings and sees the valley of the river Plitus, with its olive-orchards. The mountains beyond rise in succeeding ranges and form the termination of this natural background. No scenery was needed in this theatre, and if the play grew wearisome one had but to lift the eyes and a panorama of natural beauty awaited that could not be duplicated from any theatre-seat in the world. This transcending beauty of the landscape brings the visitor to better realize the place Delphi held in the hearts of the people at the time of its splendor and how it won their support and protection through so many centuries.

Ruins of the Sacred Precinct.

The stadium is on a shelf-like formation farther up the side of the mountain, but is of little interest because it was rebuilt by the Romans. They added arch construction to the former Greek simplicity and in many places much of the Greek feeling is lost by these additions. The Romans defiled, as they did so many places, the sturdy and frank construction of the Greeks by their ornate and veneered architecture. The stadium is at the end of the winding path through the sacred precinct and completes all we can see to-day of Delphi, except the smaller group of temples farther down the mountain. These temples are in complete ruin. They were crushed by large masses of rock falling from the mountainside above.

The more interesting details and precious objects found during the excavating have been placed in a museum, built by the French, near the site of the temple of Apollo. This collection of sculpture and votive offerings is our heritage of all the grandeur and splendor that once existed at Delphi. Though located in an out-of-the-way part of the world there is still a message of inspiration to the interested, who will be well repaid for a pilgrimage to the shrine of the ancient oracle at Delphi.

For the architect to-day there is at Delphi a great inspiration and a storehouse of valuable information. One's interest is always enlivened, as the ruins are studied, by the fact that the works of art were executed in so many periods of Greek history. The same pile of ruins may contain a fragment of archaic art, a moulding with the spirit of the Golden Age marked in its contour, or a capital from the Roman period. Few other Greek centres were kept alive during so many centuries, so this comparative study is especially appreciated at Delphi.

Scattered throughout the ruins of the sacred precinct are fragments of the votive offerings, monuments, and temples. Only a small, irregular piece of marble sometimes, but on one edge a moulding is preserved as clear cut in its contour as the day it was fashioned by some Greek stonecutter twenty-five hundred years ago. Each stone has a message for architectural work to-day; each Greek curve will serve the modern architect as a guide in his constant strife for refinement of line and purity of detail.

With a scale and a pad of paper as the modern equipment and the memory of five centuries of Greek civilization as a companion, one can go about the ruins drawing, sketching, or measuring whatsoever is desired without opposition, except from the ever-present lizard, that watches, around the corner of the fragment under study, fearing the destruction of his historic haunts.

Profiles can be taken which will serve as helpful references in practice, for if the exactness of the line is not adhered to, but only studied, the architect will come to conceive the forms to-day in the spirit of the early purity and read into the modern work some of the subtleness that is still shown by the fragments of a time long ago.

The Competition for the Liberty Memorial at Kansas City, Missouri

By H. Van Buren Magonigle

THIS courage and loyalty so splendidly shown, this honor for which these patriots sacrificed their lives and their material interests—it is the memory of these which must be our inspiration for life in the new world revealed to us by the World War. Therefore, this design signifies—The Flame of Inspiration, guarded by the Spirits of Courage, Honor, Patriotism, and Sacrifice, burning forever upon an altar high erected in the skies, a pillar of cloud by day, a pillar of fire by night.

The uncertainty as to the function, size, and number of the buildings which may ultimately be placed upon this hill has determined a composition that shall not depend for any of its present effect upon the relation of any of these future structures to the memorial, which is the subject of this composition.

Hence the great axial mall of the simplest character, framed in trees.

To east and west of this any buildings may be built and yet be effectively united in a general composition without disturbing the sweep of lines leading to the memorial. The structures accessory to the memorial are, on the one hand, a building for the use of "those who came back," treated as a kind of fraternity chapter-house for reunions and rededication to the service of mankind, and on the other, a small museum for records and memorabilia.

The scale of the composition toward the station plaza is commensurate with this large area and with the distance of the memorial from the points in the plaza at which it is first completely visible.

The direction of the main axis was determined by these factors: It follows that line on each side of which cut and fill may be most readily equalized, and the fall of the ground utilized for lighting the lower stories of the buildings—as, for example, in the Art Building, which is intended to have, to the west, two full stories below the main-floor level. It unites very naturally two points of approach—the meeting point of the park roads on the top of the hill to the south, with the end of the Main Street Bridge to the north; and it creates available areas on the easterly side of the axis for some of the future buildings.

A commodious two-level subway, the upper level for pedestrians, the lower for service vehicles, service conduits, and the like, would connect and serve all the future buildings on both sides of the mall. The vehicular subway would be entered by way of the service road, which continues the line of Central Street, or from the park drive. The subway entrance for pedestrians would be under the Music Building from Main Street, and from the westerly side of the Art Museum, and would be (like the subway for service vehicles) connected by elevators with all stories of the buildings above, sparing the climb to the upper level in bad weather, or on those occasions when the object of the visit is special and not for the general purpose of enjoying the beauty of the terraced and shaded setting of the memorial.

This great æsthetic centre, serenely poised on its hill in the heart of the city's daily life, with the memorial standing at its gates, will be a constant reminder of the dominance of the things of the spirit.

The mural decorations of the memorial will be under the direction of Edith Van Buren Magonigle, President of the Woman's Society of Painters and Sculptors; the sculpture by Robert Aitkin.

By Bertram G. Goodhue

SO various are the site's possibilities, and so marvellous the vision to be realized, no more can be asked of a competitive design than that it faintly shadow forth what may be; therefore no finality is claimed for the drawings herewith submitted.

Two distinct liberties we have taken, attention to which should be drawn. First, the facing southward of the monument rather than toward the station; this because on its northern side any elaborate sculpture or surface treatment would, during most of the day, be lost in shadow, and because the central niche's swelling apse would, we believe, interest the passenger and connote in his mind the sanctuary it, in reality, would be. We have also naturalized the northern slope for the sake of the contrast between rough escarpment below and the studied finish above.

Second, we have boldly thrown an archway across Main Street, setting the "Legion Building" upon its farther side; a course since advocated in no uncertain words by an eminent sculptor.

Assuming the possible propriety and recognizing the certain expediency of thus adding to the site this inaccessible and therefore inexpensive property, it is obvious that a number of otherwise quite unattainable advantages are gained. In no other way can the main group be protected from commercial encroachment; and, placed here, the "Legion Building" akin to the rest, but more intimate and domestic in character, would stand in a domain all its own, a veritable country club in the heart of the city.

So exact is the acropolitan analogy, that our design has taken shape along lines, in general effect at least, "classic." Here our endeavor to ape the Greeks ceases, and we have not scrupled to seek inspiration from other lands and periods, and to draw freely upon our own fancy, for we hold that precedent should fade and tradition abdicate whenever and wherever they clash with modern needs and ideals.

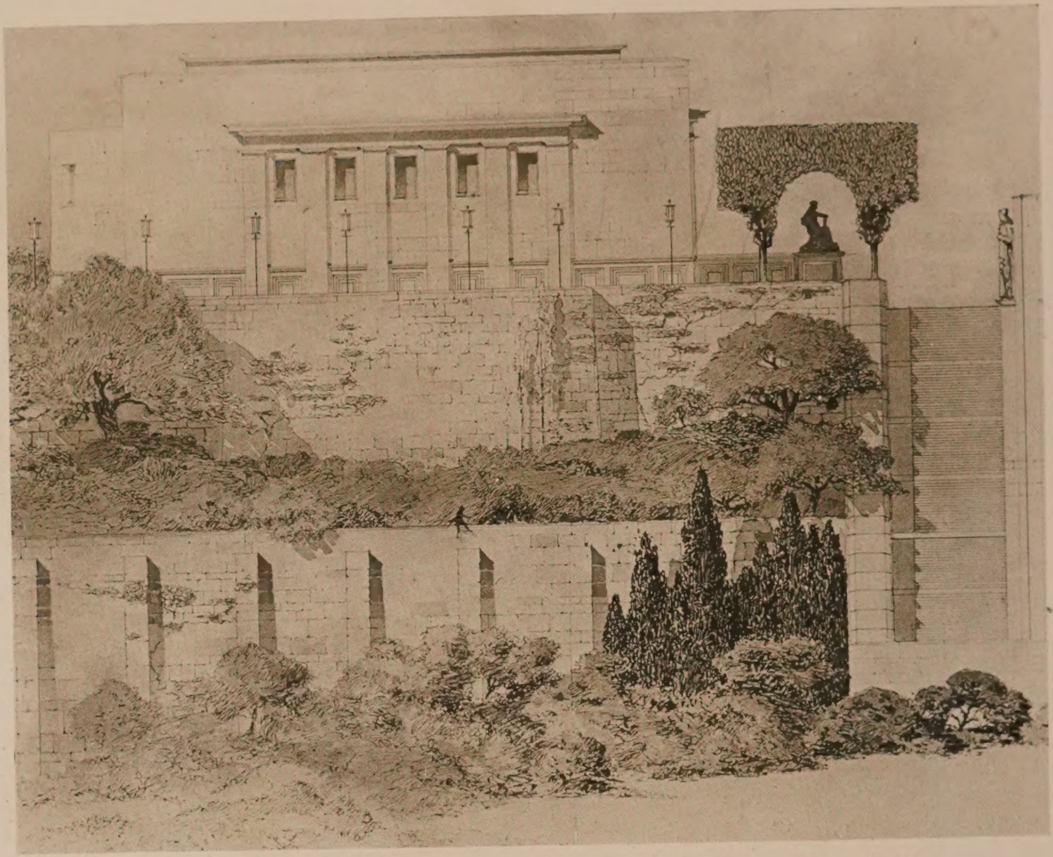
Since the use of local material was invariable in all great artistic periods of the past, as witness the Brick of Elam, the Syenite of Egypt, and the Pentelic Marble of Athens, we advocate the use of the same yellowish stone as that underlying the site. Friable and laminated at the surface, this culminates in a hard, almost white, limestone, comparable to marble. With ashlar of this and an infilling of solid concrete, the monument should be as enduring as those of antiquity.

Aiming fittingly to perpetuate the memory of those recently fallen to express our national love of liberty and to symbolize the "dawn of a warless age," we are yet constrained to regard such a "dawn" as still hid in the mists of the future, and, in this belief, have endeavored to express its ultimate certainty rather than present triumphant realization.

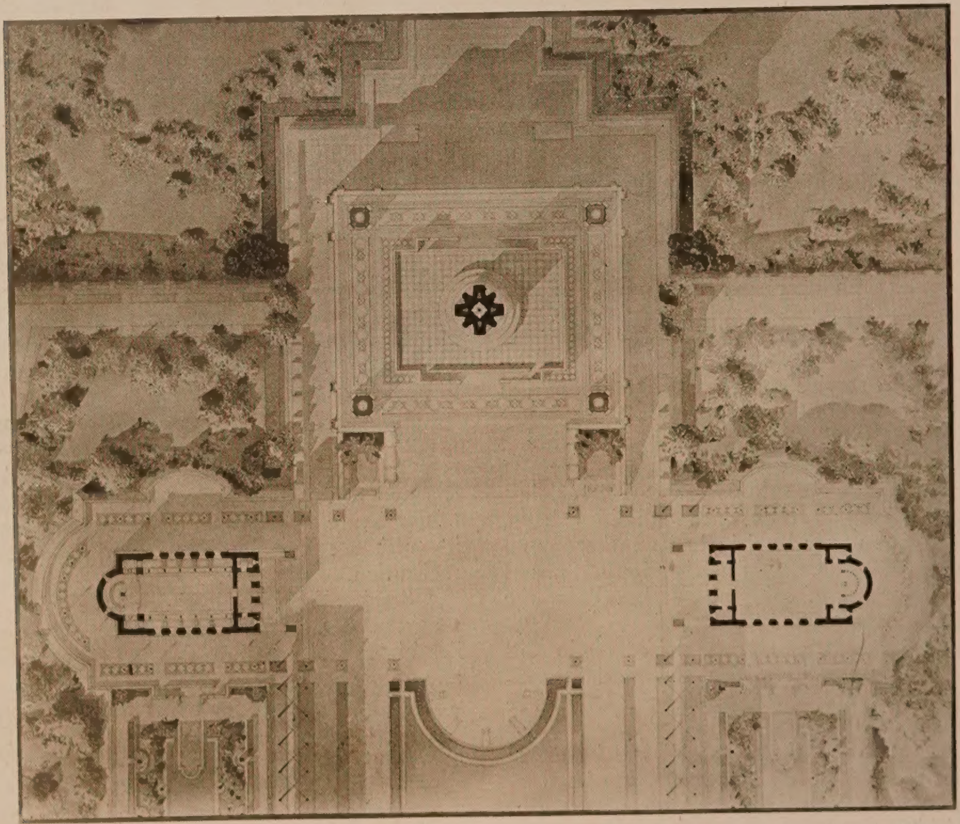
Stark, almost inaccessible at the north, the monument's southern face is its principal one, sequestered from what lies about it by a forecourt, wherein anniversary services and public gatherings might well be held, and whose arcades would provide space for minor, more personal memorials.

At the end of this court, instead of the traditional arch that signified the enslavement of a defeated enemy, rises a great pylon. At the base, below a relief picturing the august teachers of humanity, is the entrance to a domed

(*Continued on page* 238.)



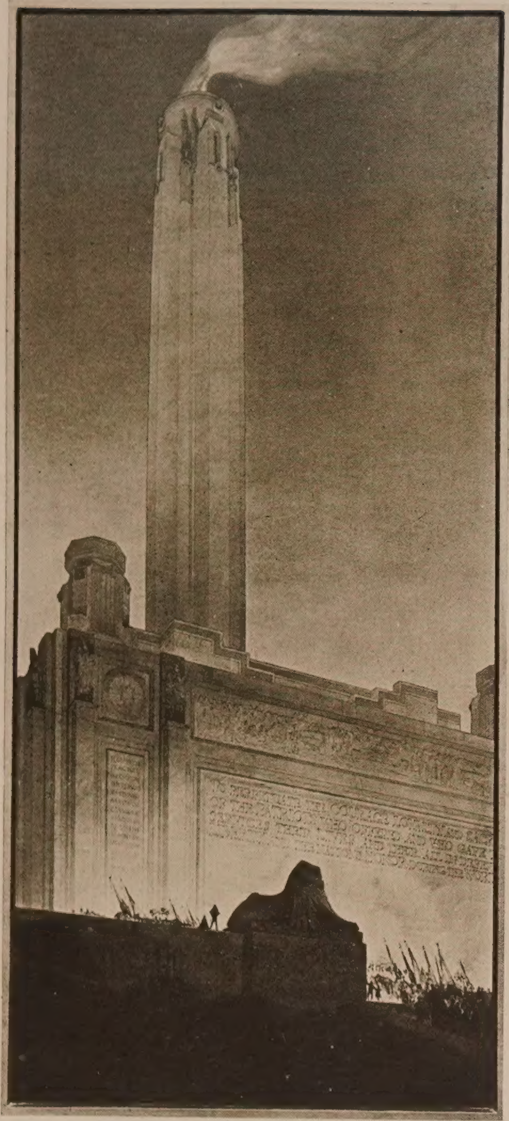
PART OF FRONT ELEVATION.



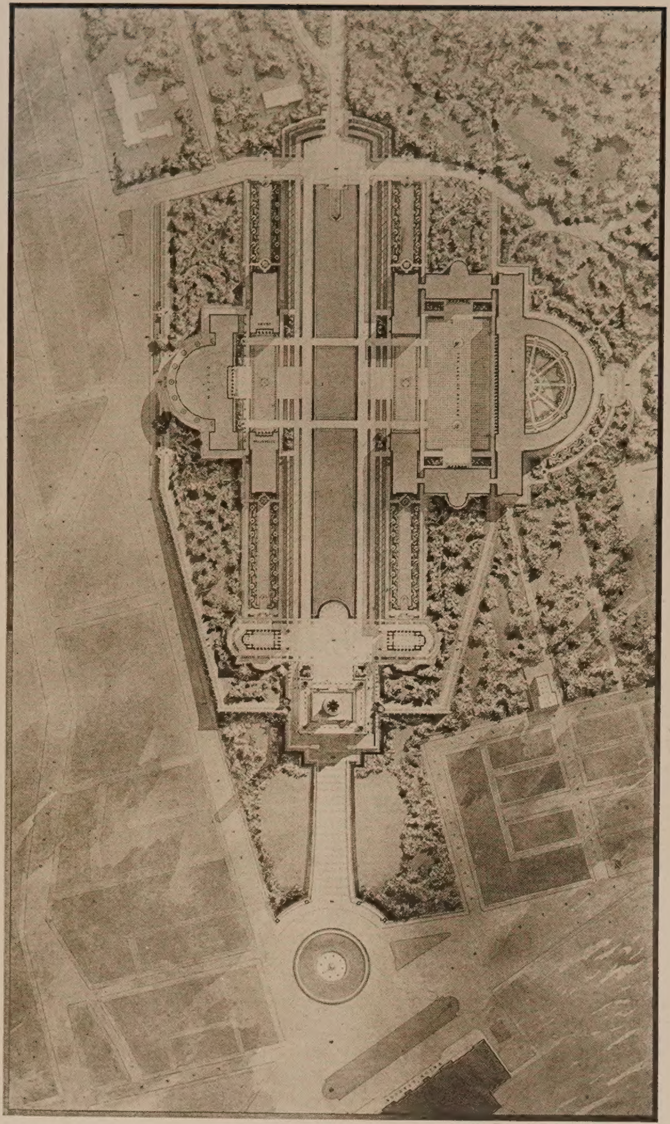
DETAIL PLAN.

H. Van Buren Magonigle, Architect.

LIBERTY MEMORIAL, KANSAS CITY, MO.

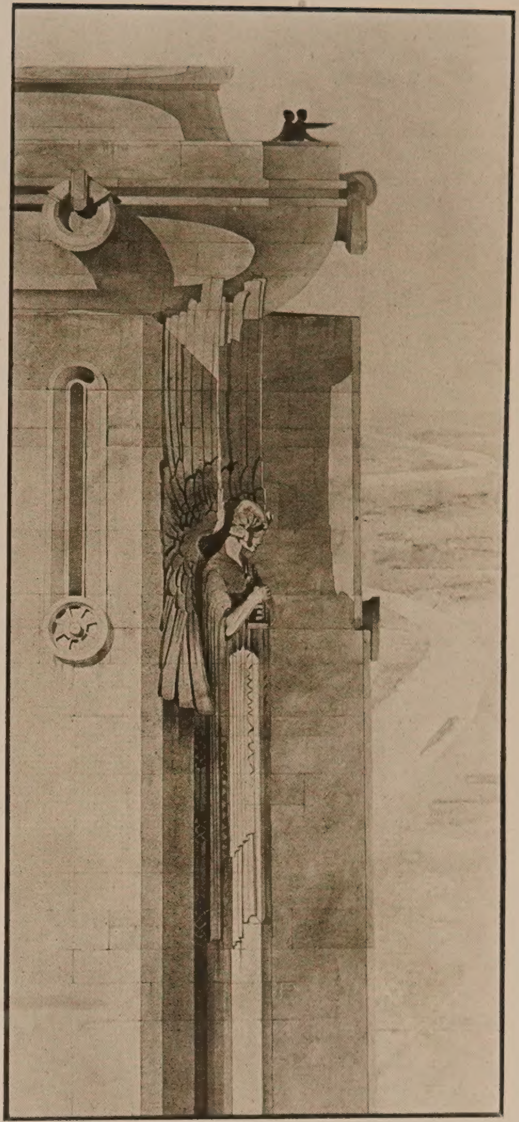


PERSPECTIVE.



GENERAL PLAN.

LIBERTY MEMORIAL, KANSAS CITY, MO.



DETAIL OF MONUMENT.

H. Van Buren Magonigle, Architect.

(*Continued from page* 235.)

chamber, where upon a cenotaph rests a vast sword, fast-sheathed to symbolize the ending, not of the recent conflict only, but of all war, utterly and forever. Above its tile-lined niche, the simply incised inscription makes clear to even the most heedless, the meaning of the whole.

The sculpture for the monument, modelled by Lee Lawrie in association with Mr. Goodhue and carefully photographed to scale for the drawings, contributes a notable feature to the general design.

Flanking the great central recess are two seated figures, stony, hieratic, representing the two principles from which all life, and hence all achievement, is derived; the first grasps the Hammer of Toil and the Axe of Force, not lightly to be withdrawn from the Fasces of the Law; the second rests one hand upon the Book of Wisdom, with the other drawing closely to her the Youth, the eternal hope of all the world.

Gigantic as these are, they but serve to buttress the figure standing between them, vast, passionless, serene—Civilization, triumphant above the oblation of the slain.

The materials of which she is made, at first stone like the rest, change and become more precious. Her cloak is bronze, her flesh is creamy marble, her coronal, no mere regal device, but tier upon tier the mark of man's dominion over the elements, is gold. One hand is outstretched in benediction and appeal; the other grasps an enormous sta based upon the tortoise of slow-moving time and terminating in the steady flame of Perfect Liberty under Perfect Law, unquenchable throughout eternity.

For the rest—the other buildings, the formalized spaces, the series of tree-shaded pools, the driveways that co-ordinate and at this point terminate the city's beautiful and scientifically devised boulevard system, the fountain commemorating, perhaps, the historic Santa Fé Trail, the Propylæum with its view across the city and far into the west—all these are clear upon our drawings.

By Paul Philippe Cret

Associated with Zantzinger, Borie & Medary

THE Liberty Memorial stands at the city gate (the railroad-station) in an architectural setting such as the terraces of Piazza del Popolo, in Rome, and is by its restraint appropriate in character to the ideals it is proposed to commemorate. It rises from the Pershing Drive by an easy grade to the Commemorative Centre, at the foot of the retaining wall. Here may be held the city's commemorative ceremonies, or pageants, the spectators being massed on the two stands, the steps, and the terraces. The wall itself is an essential part of the memorial; its heroic bas-reliefs, its altar form, tell of the sacrifices made that peace may forever be. It is also appropriately the base of the Peace Statue, which towers above the activities of the city. From the Union Station the firm lines of the shaded walks and the big lawn culminate in this altar of sacrifice, and in the statue, thus forming an "ensemble" which does not have to wait for future appropriations to be complete and worthy of Kansas City.

The Veterans' Building has been placed so as to give the soldiers the impression that they are on their own grounds, in a pleasant club-house surrounded by its garden and overlooking the park. A bridge connects its main floor to the memorial proper, in order that the veterans may readily take their part in the exercises held in the Commemorative Centre. The bridge is also a covered carriage entrance to the auditorium on the ground floor. The offices and meeting-rooms of the patriotic societies are housed in the building, with such other rooms to make it an inviting centre for "those who came back."

On the hill will be grouped the buildings to house the highest manifestations of the intellectual life of the city.

Under the protection of the figure of Peace, an ordered, although not stiffly formal, group of buildings will form the modern acropolis of Kansas City. From the central plaza the view opens widely to the north and the valley of the river. Buildings are placed on the high retaining walls, which were such an element of beauty in the towns of the classical world, while on the west the less formal design blends the acropolis to the design of Penn Valley Park.

The three main groups—Fine Arts, Letters, Music and Drama—all have carriage access from every direction, and an access from Main Street level through an elevator entrance. Several lesser buildings could be devoted to private memorial foundations or meeting quarters of societies.

The connections between the drives of Penn Valley Park, the memorial group, and Main Street are secured through an effective system of ramps, giving interesting and ever-changing views of the composition.

The greatest care has been given to make the utmost of the topographical possibilities of the site by enhancing their value and securing a variety of aspects which would be unique; the placing of the composition on a single axis insures at the same time that directness and simplicity found in all great compositions.

By Greenebaum, Hardy & Schumacher

HOLDING in mind the dual character of the memorial as indicated by the programme, it was felt that expression of the ideal, as embodied in a symbol of peace, and the subservience of more practical purposes as attained in an edifice for the use of World War veterans, were best treated in separate units; that the domination of the spirit and feeling of peace as the inspirational idea of the scheme demanded some degree of isolation.

The solution, therefore, which we submit, comprises a monument and a memorial building, sufficiently distinct from each other to obviate any possible conflict between the symbolic and the utilitarian.

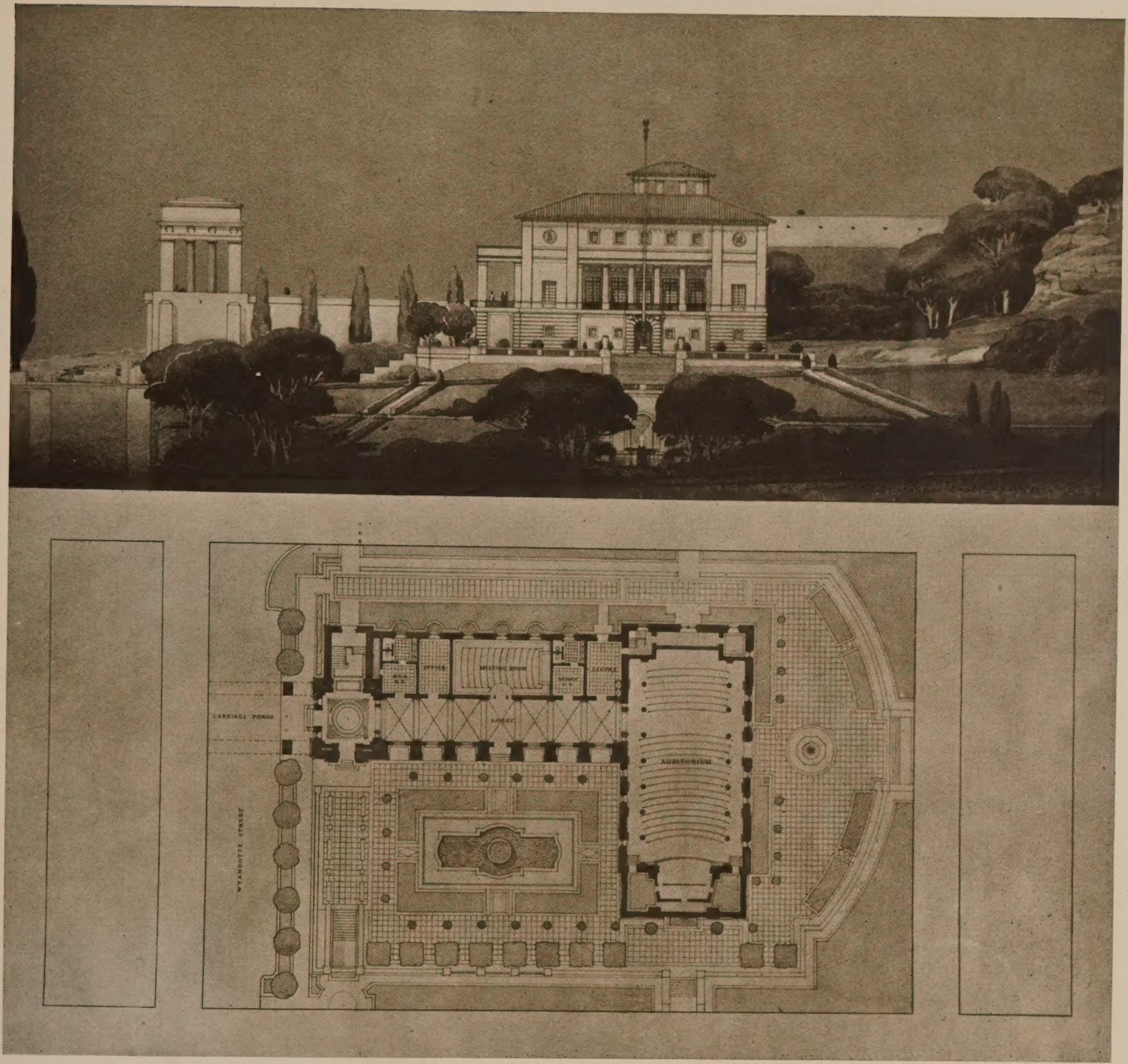
The twenty-eight columns flanking the four exterior walls of the memorial building symbolize the twenty-eight countries which lent their support to the allied cause in the World War.

An unsymmetrical group plan was adopted as best suited to the irregular shape of the site and the peculiar topography of the property. Such a parti lends itself to a more open scheme, affording an unobstructed view of the monument and memorial building from either approach. At the same time it permits of expansion or contraction in, and the rearrangement of, the art group as requirements of the future may dictate without impairing the view or dominance of the central motif, the monument.

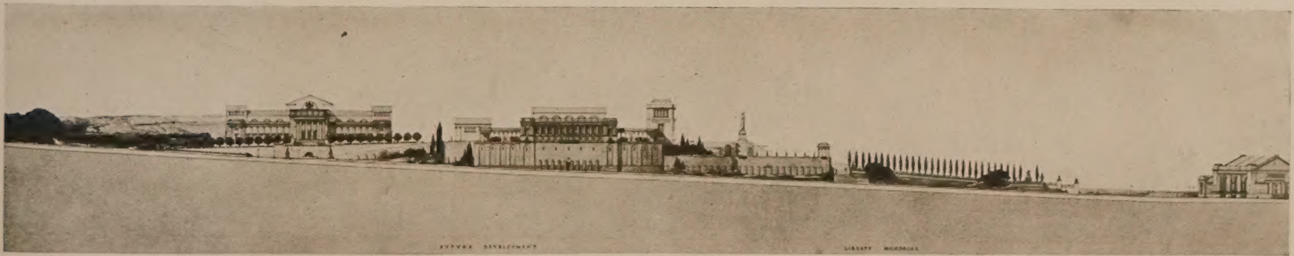
The memorial building is placed on the existing promontory, and the retaining walls are almost exactly coincident with the present formations of the property. These walls, with the exception of those immediately below the memorial building, may be left for future development.

The south approach to the site is also an approach to the park, but an auxiliary east and west road immediately to the south has been indicated as an artery for heavier traffic.

In the preparation of the three-quarter-inch-scale detail the frieze has been shortened and other revisions made for the sake of composition, and to minimize the size of the drawing.

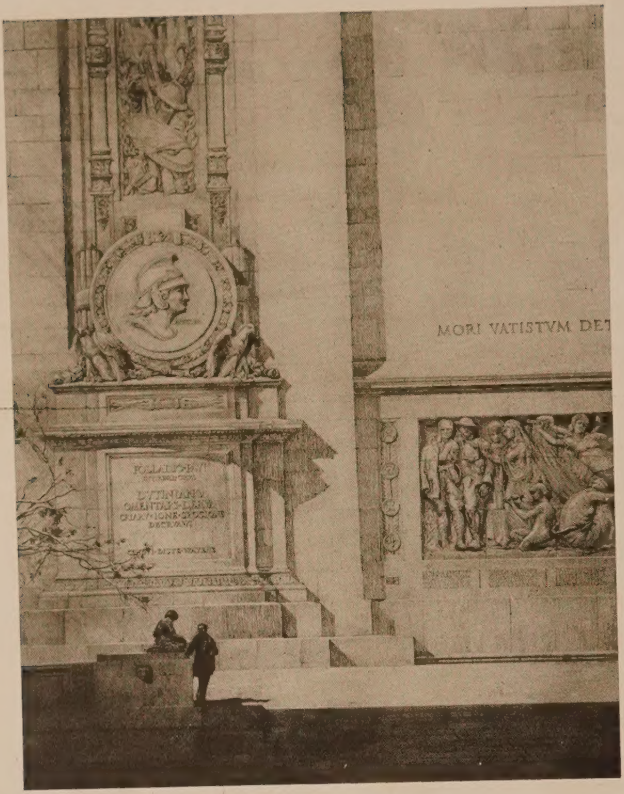


VETERANS' BUILDING AND PLAN.

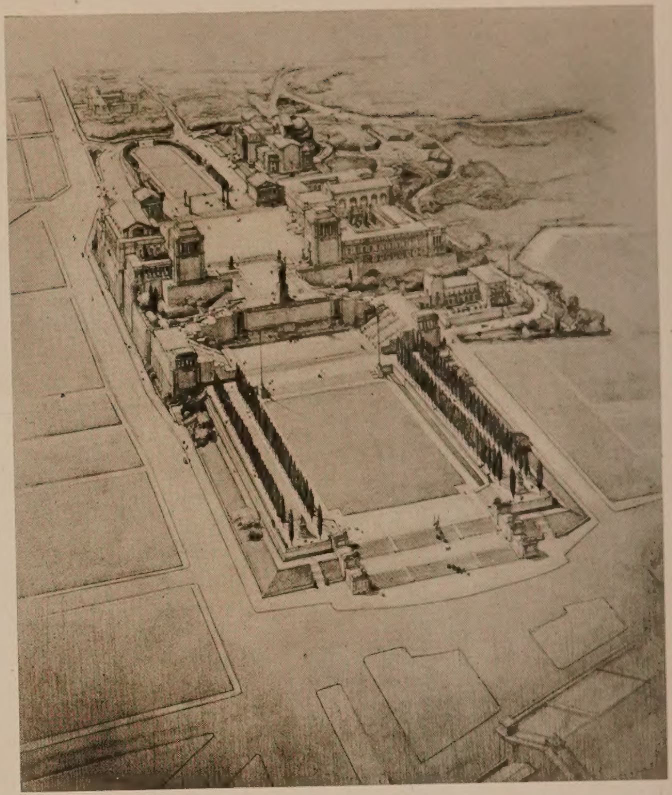


PERSPECTIVE. Paul Philippe Cret, associated with Zantzinger, Borie & Medary, Architects.

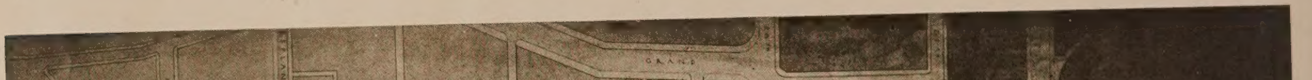
COMPETITIVE DESIGN, LIBERTY MEMORIAL, KANSAS CITY, MO.



DETAIL OF MONUMENT.



BIRD'S–EYE VIEW.



GENERAL PLAN.

Paul Philippe Cret, associated with Zantzinger, Borie & Medary, Architects.

LIBERTY MEMORIAL, KANSAS CITY, MO.

Editorial and Other Comment

As to Building

THE late Mr. Hamlet's problem was no more disturbing to his peace of mind than the one propounded above to the minds of many thousands in these modern times. We have, to be sure, no merely spiritual doubt to worry us; there is little of the pale cast of thought in the faces of the men who are "up against" this question, no mere mooning about things that are beyond earthly affairs. Our problem is one of purely material matters—no pun intended—and the high cost of labor. It would take a prophet with the wisdom beyond all records to say with any real assurance yes or no. Conditions in one place do not govern in others, except that in the great centres of business the cost of labor is practically the same. A prominent Western manufacturing concern recently sent out a questionnaire, with a result that only confirms the general feeling that there is no way to really determine just the right thing to do. Among the most important things that are holding up building are "labor disputes, material prices, labor costs, credits, unstabilized conditions, lack of confidence, freight rates," yes, individually and collectively, and other things too numerous to mention, and what are we going to do about it? There's the rub. According to many, the best that can be expected in the way of readjustment of prices will be a reduction to something like 100 per cent above those of 1913. Who can tell?—it is all guessing. Many who are waiting will be left at the post, and many who plunge ahead may find themselves wishing they had been. To those who can look back on the days when there seemed a more united America, when English was the familiar language of artisans of all kinds, and an appeal to patriotism meant something besides getting a dollar—times were different. We feel that this question of building, of providing places for people to live, is as vital to our national welfare as the building of ships and the doffing of hats at the passing of the flag. What we are in need of is a realizing sense of the disturbing power of the alien-labor element, and, too, of the grafting and conscienceless methods of all kinds of profiteers.

Labor will not believe what the capitalists say regarding the need of reduced wages, and the great financial institutions and individual lenders of money are fearful of mortgage loans based upon present inflated costs. And there you are!

Our private opinion is that about the only way to arrive at any satisfactory issue is to go ahead and build. Mr. Bossom quotes very aptly from General Grant, "the way to resume is to resume." From all we can gather from various sources, there will never be a return to pre-war prices. We have adjusted ourselves fairly well to the greatly increased cost of living in general; why not plunge and get the parade started on a concerted building programme that will compel better price adjustments? Unless labor has completely lost its senses, and capital its initiative, something is going to happen—must before very long.

We believe that much of the uncertainty existing is based not upon insurmountable conditions, but chiefly upon the lack of seasoned courage to make a beginning. Some one is going to beat you to it. If a few more Oleans get busy (see page 249), we shall never have to write another editorial that may not be expressive of equal optimism.

The Effect of Tax Exemption in New York

RECENT statistics regarding the effect of the tax-exemption law in New York are encouraging. There has been quite a marked improvement in building over last year, and if capital can be convinced that it is good business to lend money for building, another six months will show still greater progress.

"Homes to accommodate 20,897 families and to cost $100,000,000 have been planned since the tax-emption law advocated by Borough President Henry H. Curran took effect, according to the records of the building bureaus of the five boroughs, made public by him recently. He urged public-spirited citizens to come to the aid of the home-builder by loaning money on first and second mortgages.

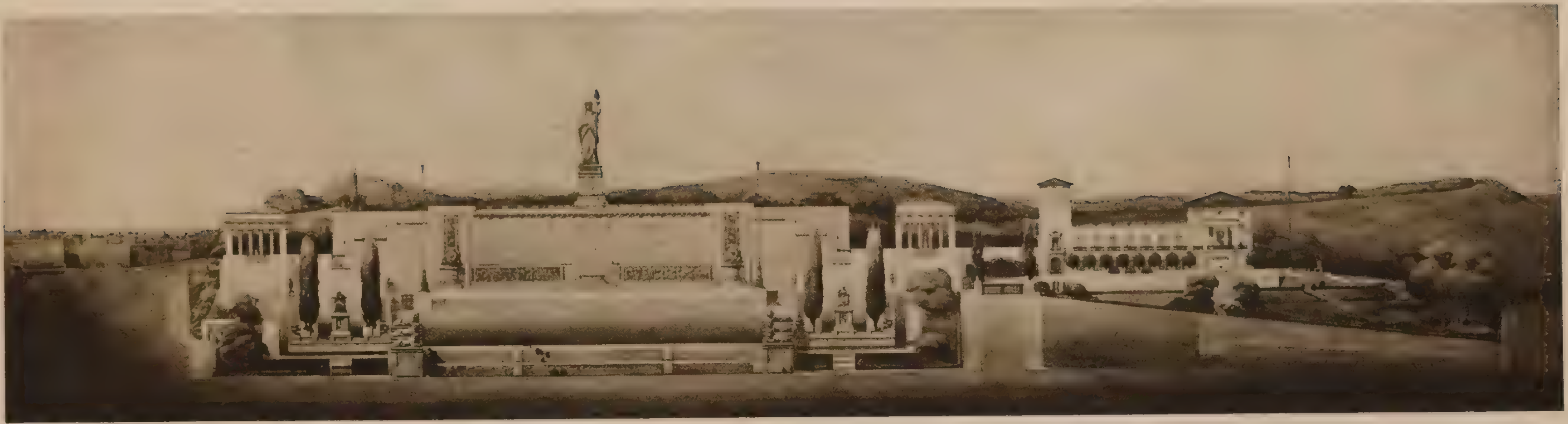
"The period covered by the figures is from February 25 to July 9. For the same period last year only $37,143,000, providing for 6,604 families, was invested in homes. The following table shows the character of houses and distribution of the families provided for in the $100,000,000 list:

	HOUSES	APARTMENTS	TOTAL
Manhattan	104	1,740	1,844
Brooklyn	5,314	3,166	8,480
Bronx	966	3,481	4,447
Queens	4,453	608	5,061
Richmond	1,065	0	1,065
Totals	11,902	8,995	20,897

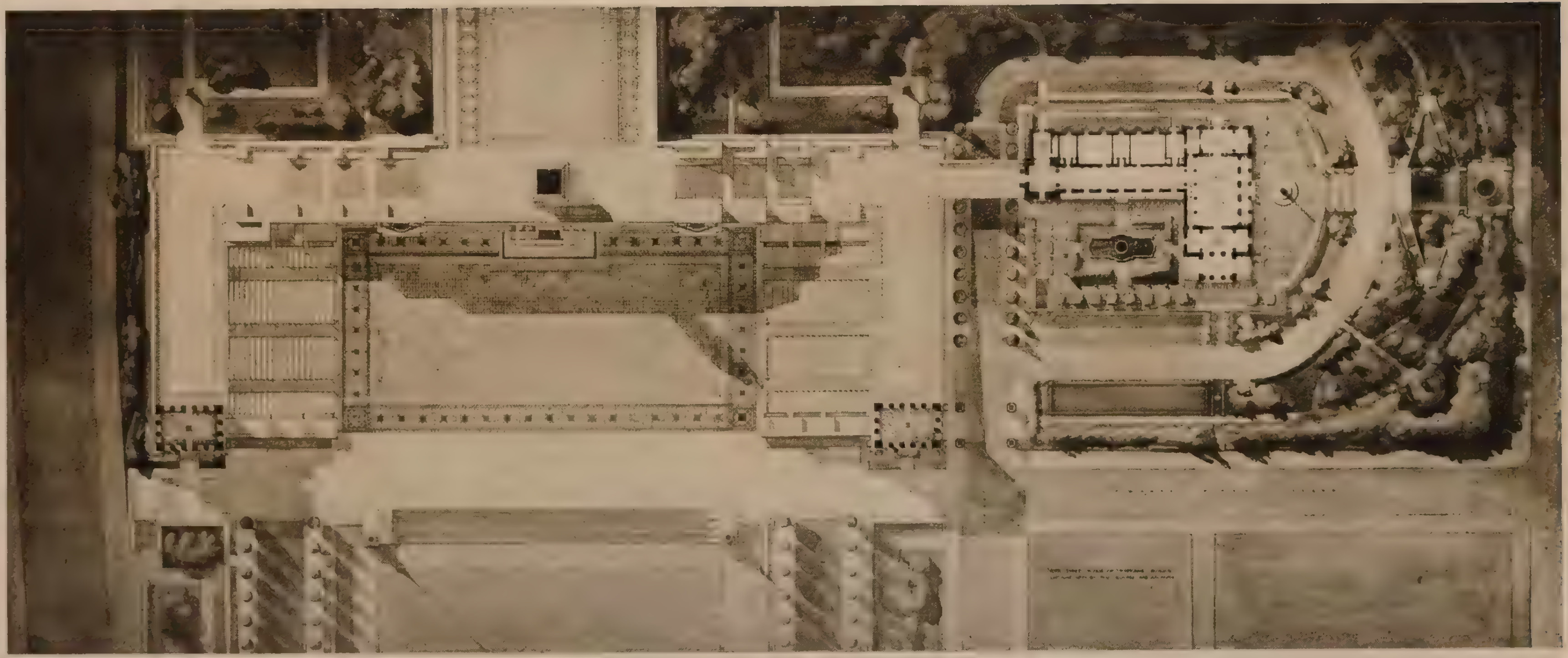
The Liberty Memorial at Kansas City

THE competition for the Liberty Memorial at Kansas City, Mo., that has been decided in favor of the plans submitted by H. Van Buren Magonigle, brought forth a number of notably distinguished and original designs. We are privileged to publish in this number those of the winner, together with those of the three other competitors whose work met with the highest praise.

They all show a wholesome, vital tendency to get away from purely traditional forms and styles, to make architecture more an expression of our own times, of American ideals, of the noble purposes the memorial commemorates. The theses that accompanied the drawings are also published in this number, and express better than anything we might say the motives that animated the competitors and the inspiring purposes that governed them in their creations.



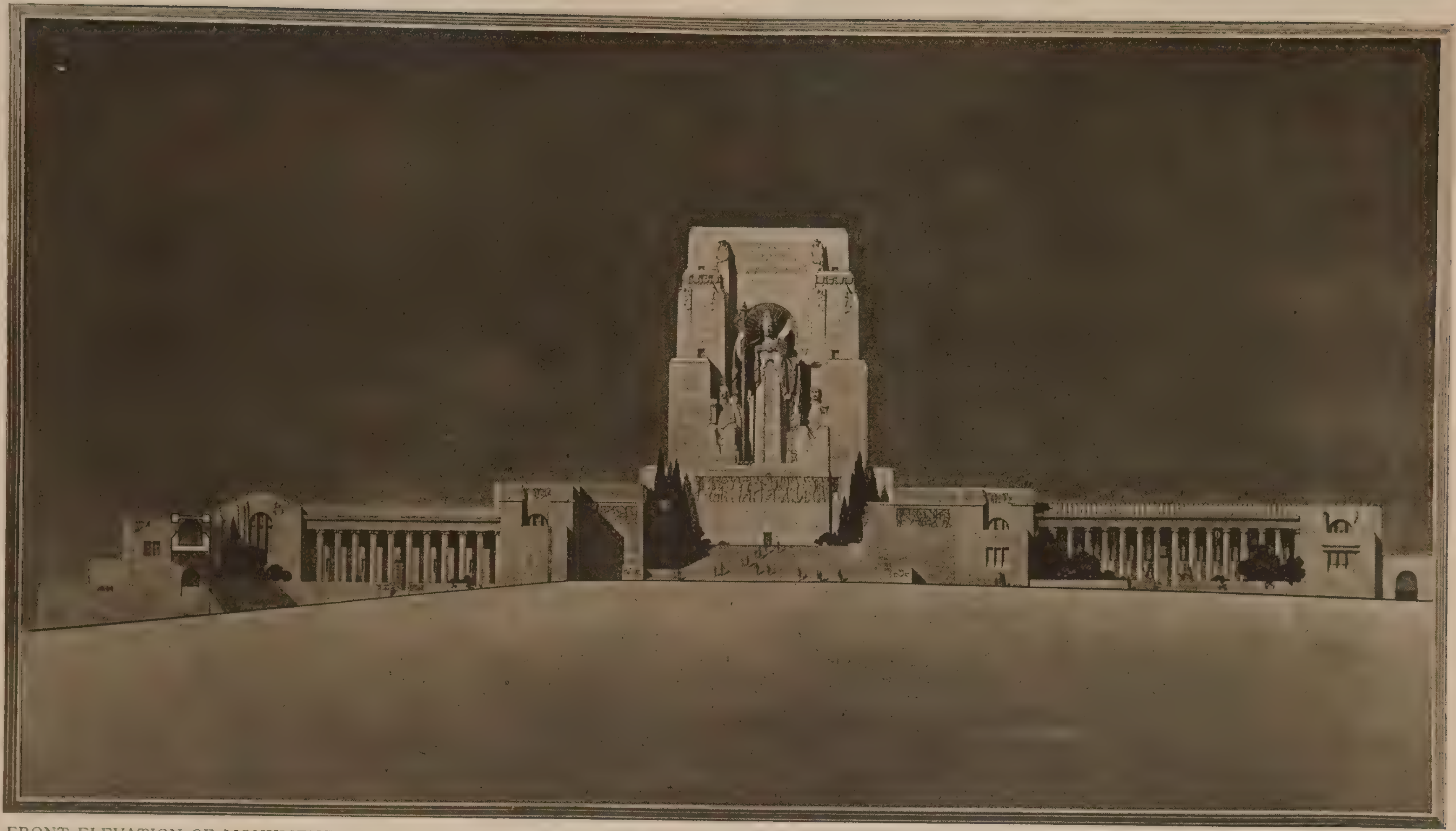
FRONT ELEVATION OF MONUMENT.



DETAIL PLAN.

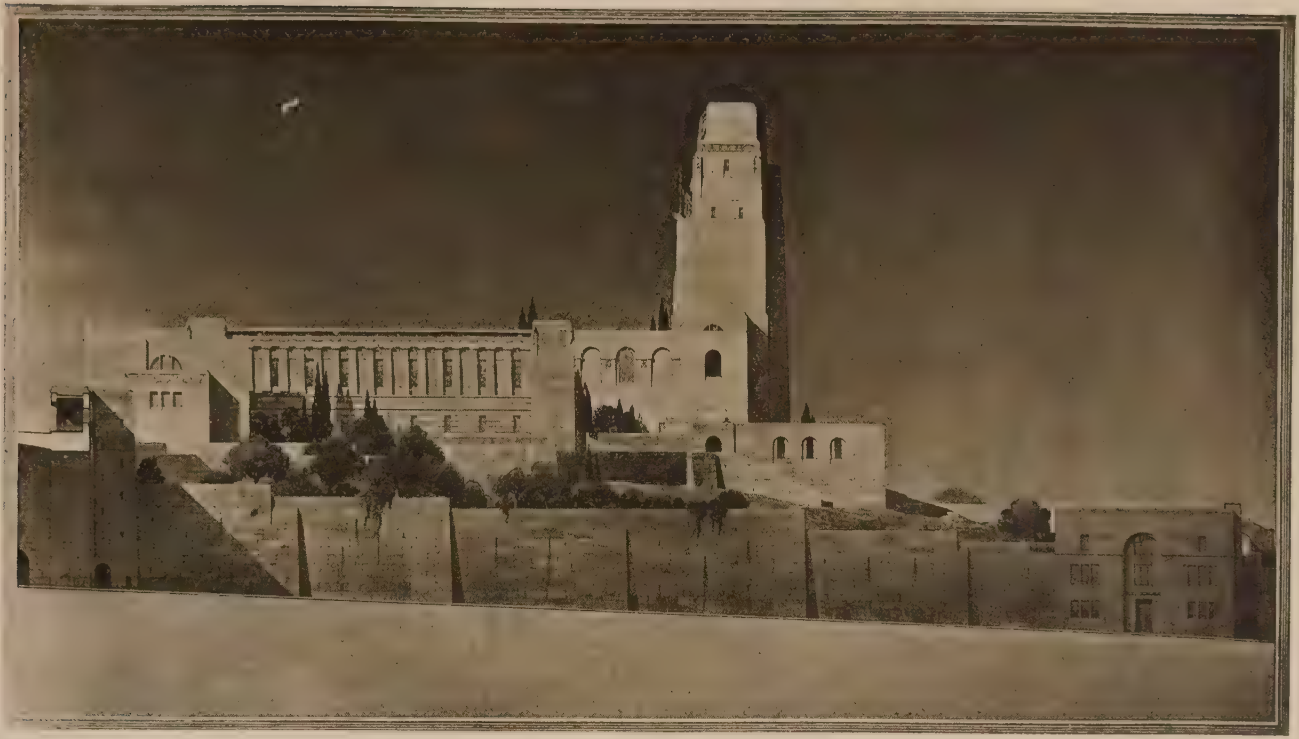
Paul Philippe Cret, associated with Zantzinger, Borie & Medary, Architects.

LIBERTY MEMORIAL, KANSAS CITY, MO.

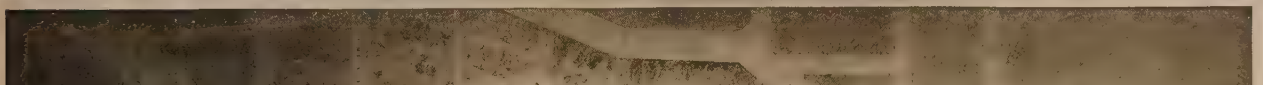


FRONT ELEVATION OF MONUMENT, LIBERTY MEMORIAL, KANSAS CITY, MO.

Bertram Grosvenor Goodhue, Architect.



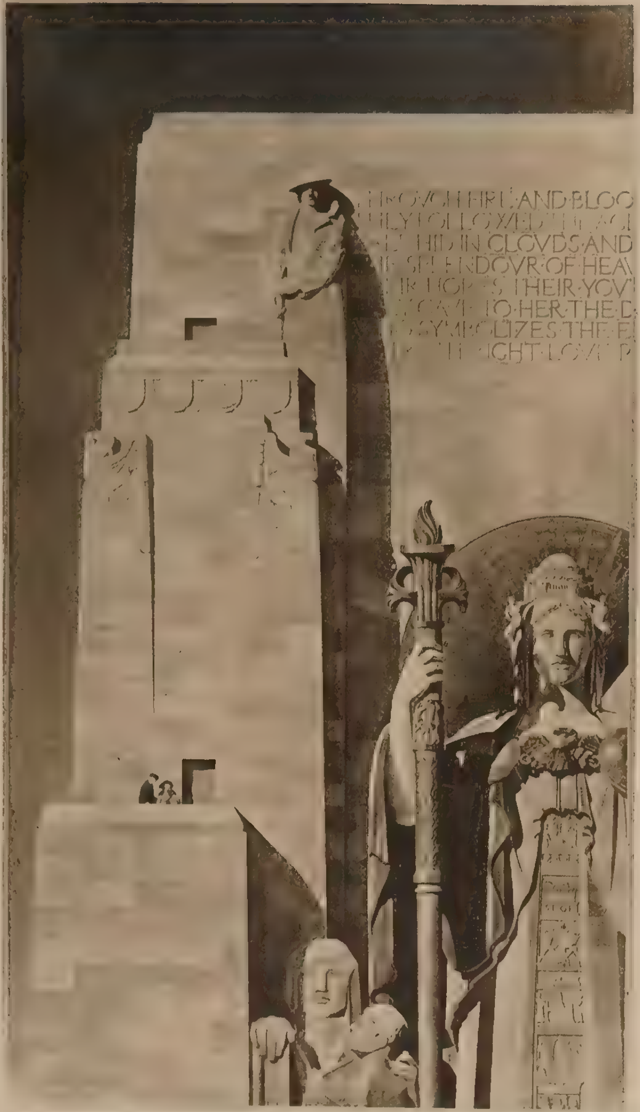
SIDE OF MONUMENT.



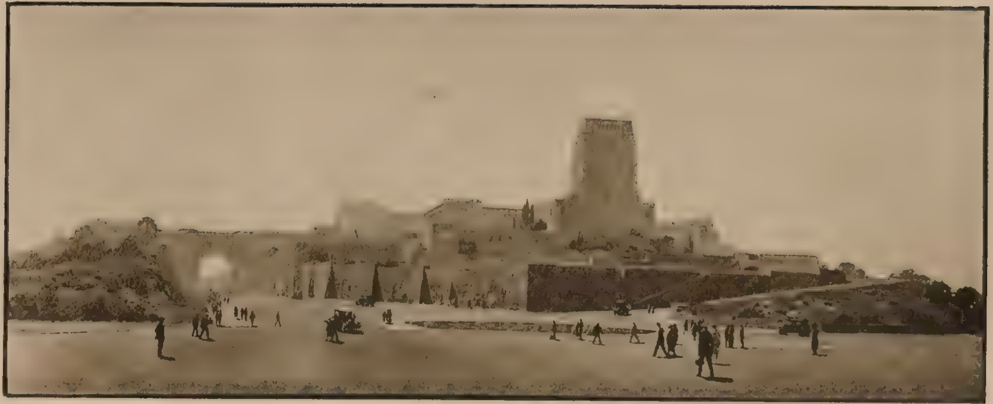
GENERAL PLAN.

Bertram Grosvenor Goodhue, Architect.

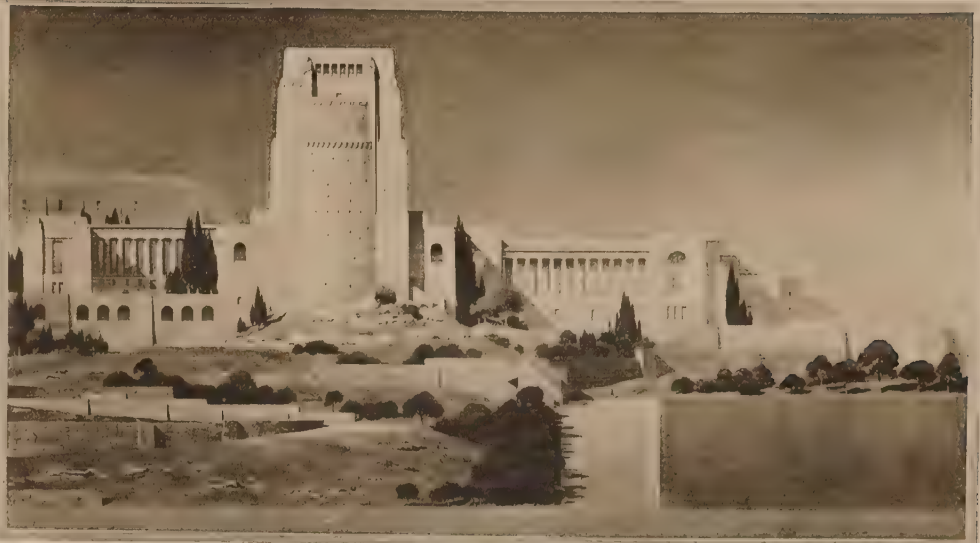
LIBERTY MEMORIAL, KANSAS CITY, MO.



DETAIL OF MONUMENT.



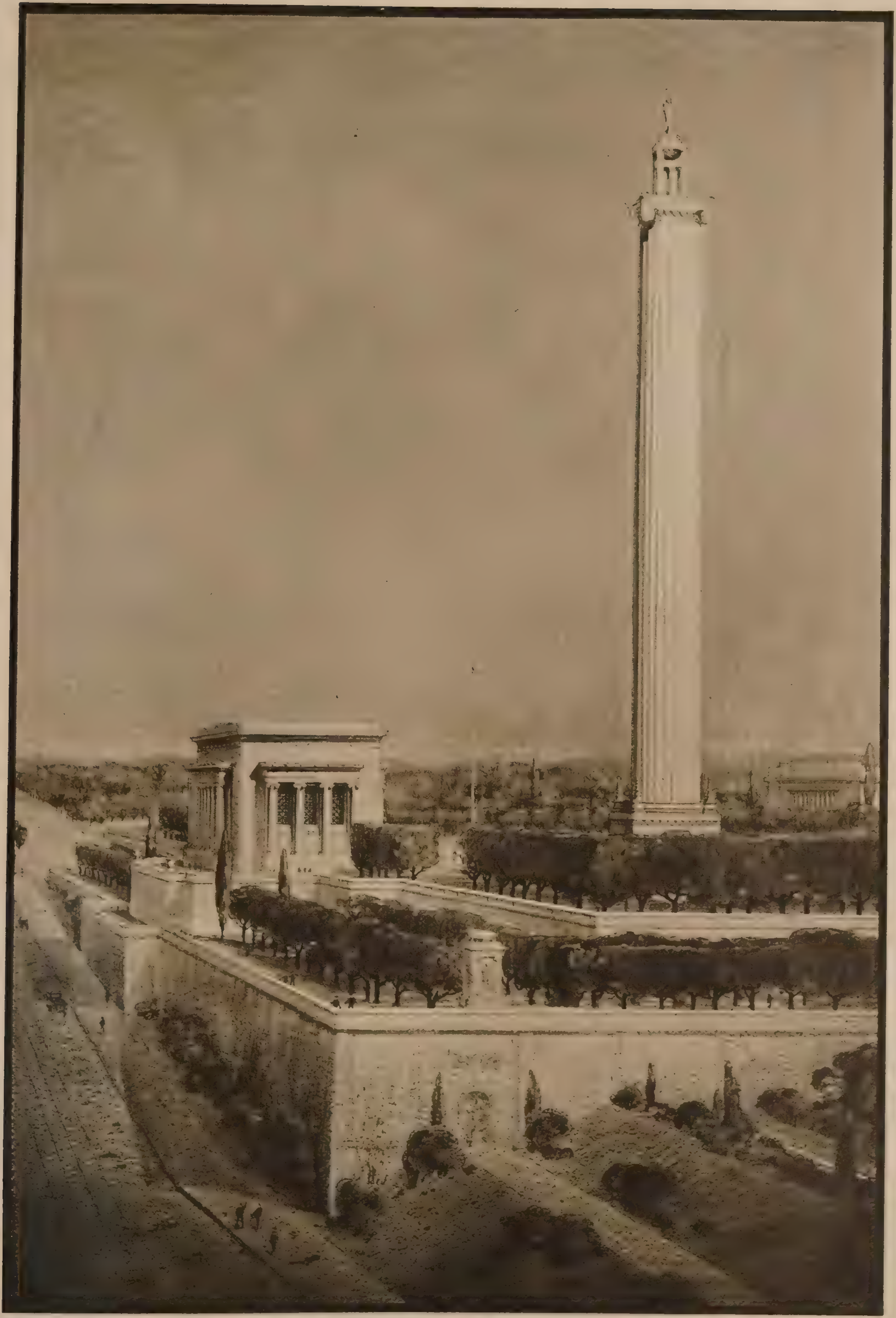
PERSPECTIVE.



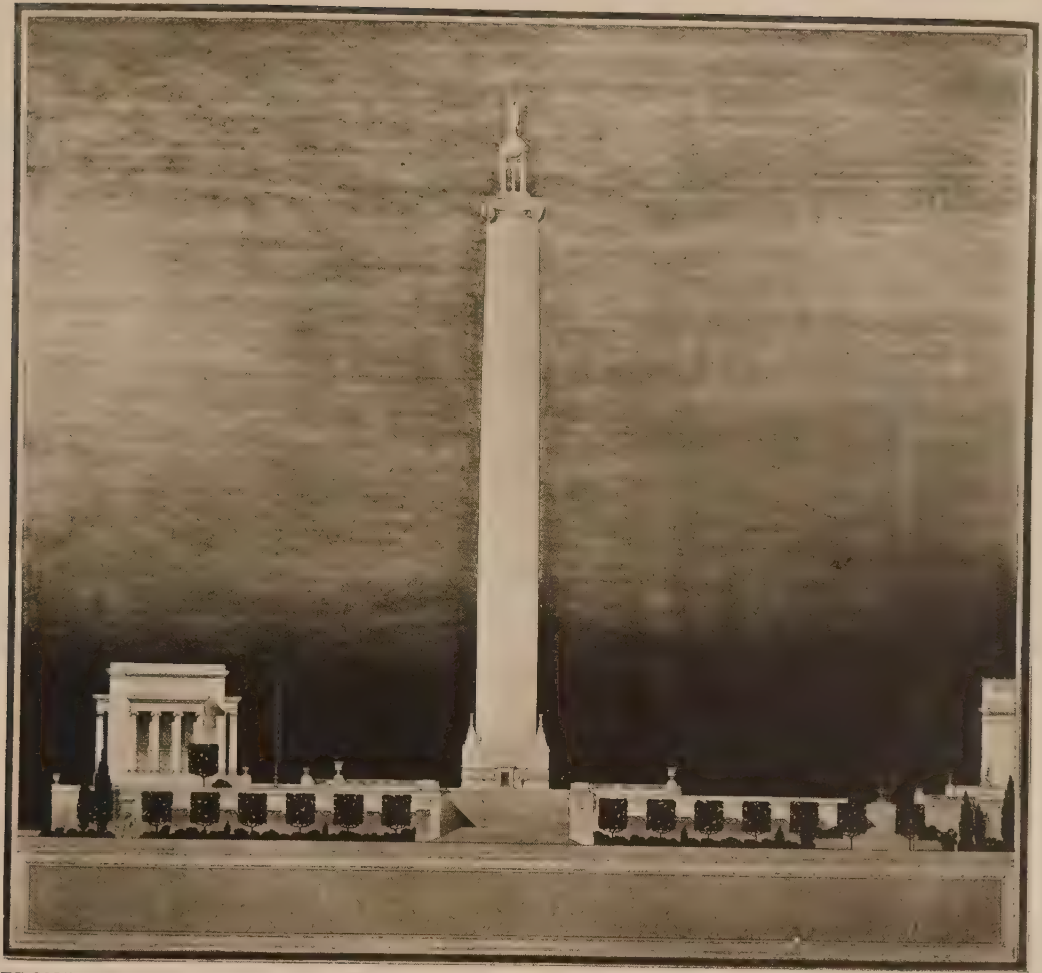
REAR OF MONUMENT.

Bertram Grosvenor Goodhue, Architect.

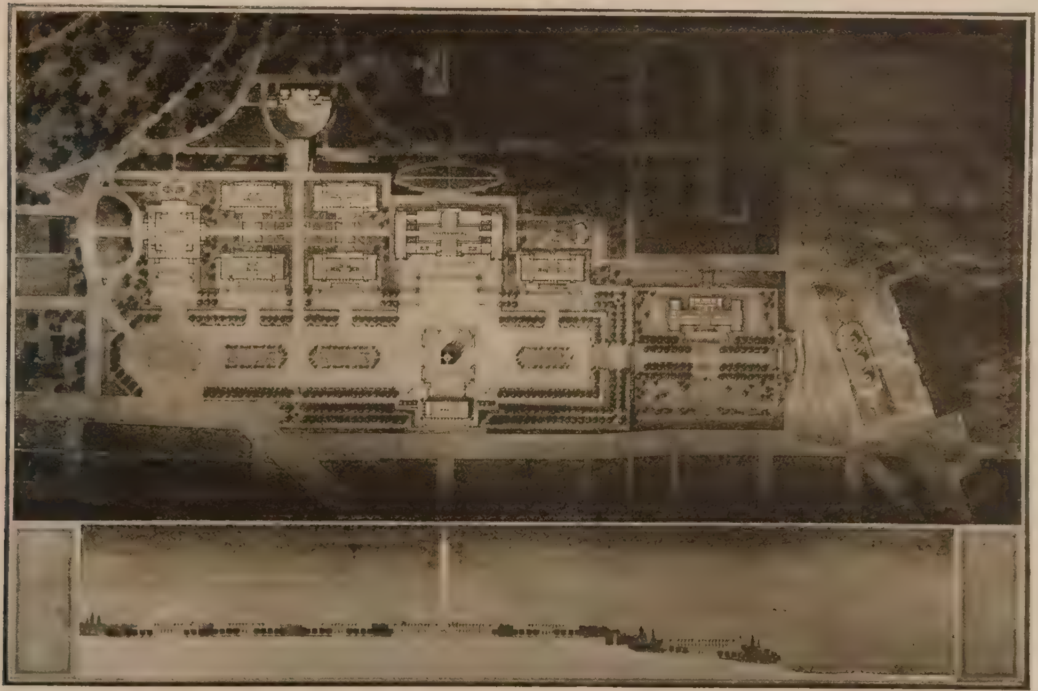
LIBERTY MEMORIAL, KANSAS CITY, MO.



PERSPECTIVE, LIBERTY MEMORIAL, KANSAS CITY, MO. Greenebaum, Hardy & Schumacher, Architects.



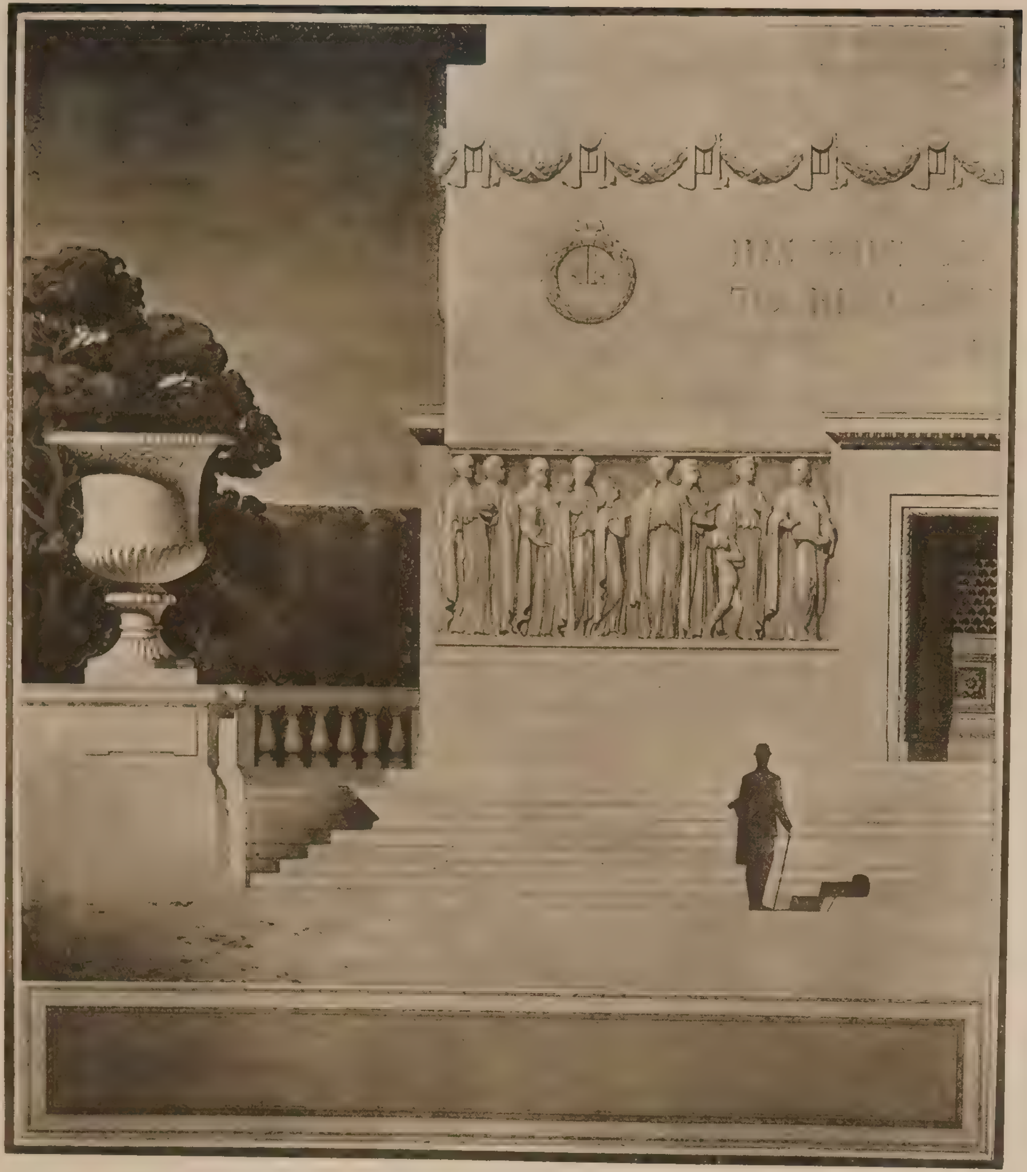
FRONT ELEVATION OF MONUMENT.



GENERAL PLAN.

Greenebaum, Hardy & Schumacher, Architects.

LIBERTY MEMORIAL, KANSAS CITY, MO.



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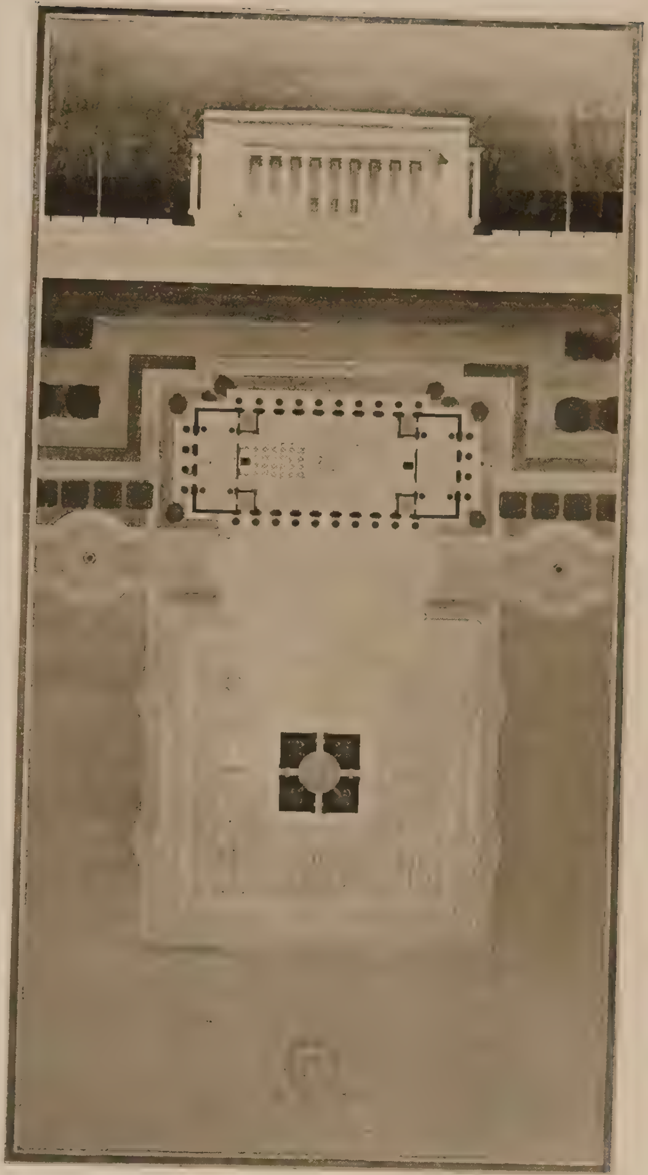
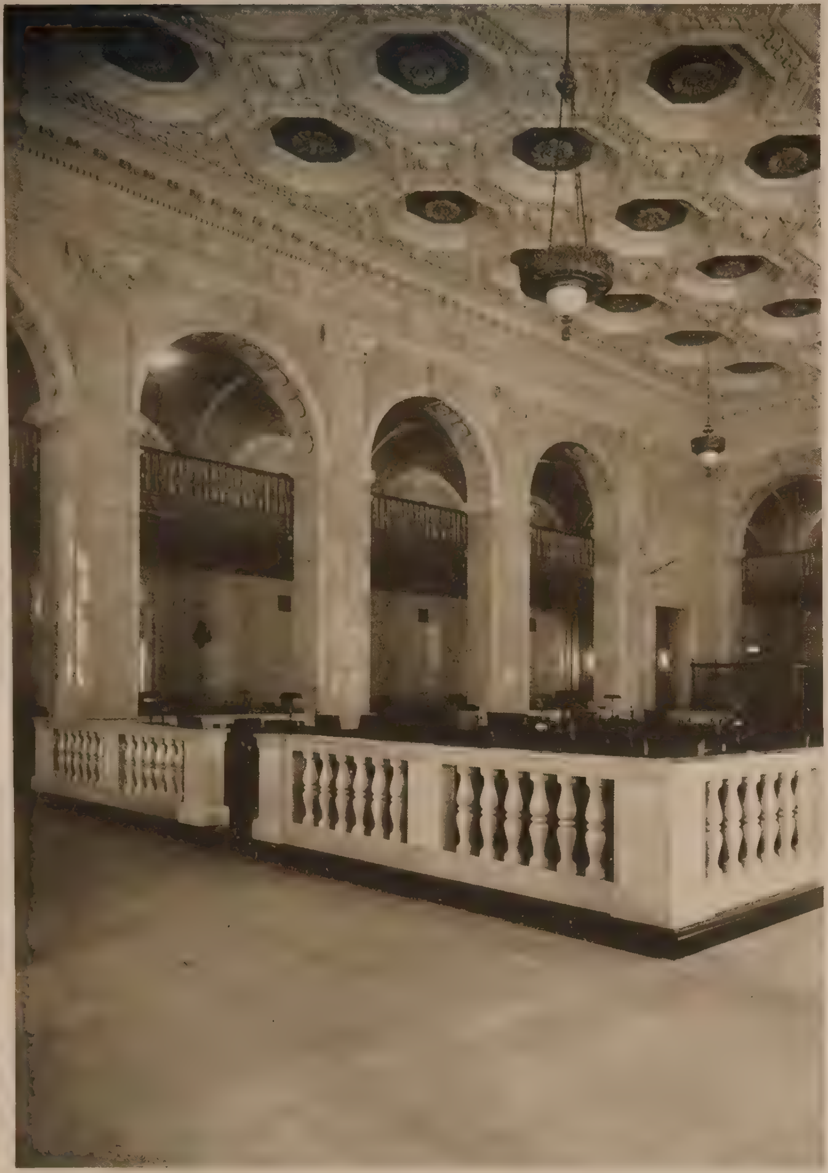


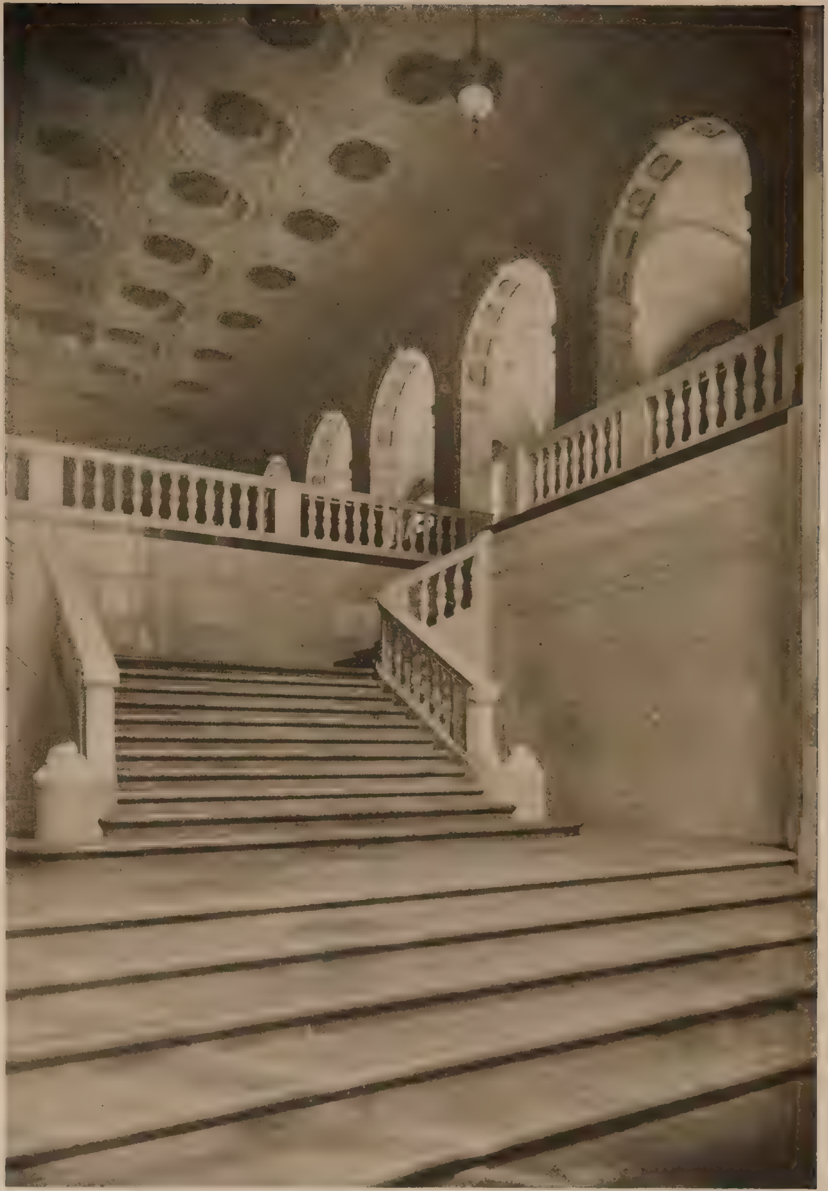
BUILDING AND PLAN.

Greenebaum, Hardy & Schumacher, Architects.

LIBERTY MEMORIAL, KANSAS CITY, MO.

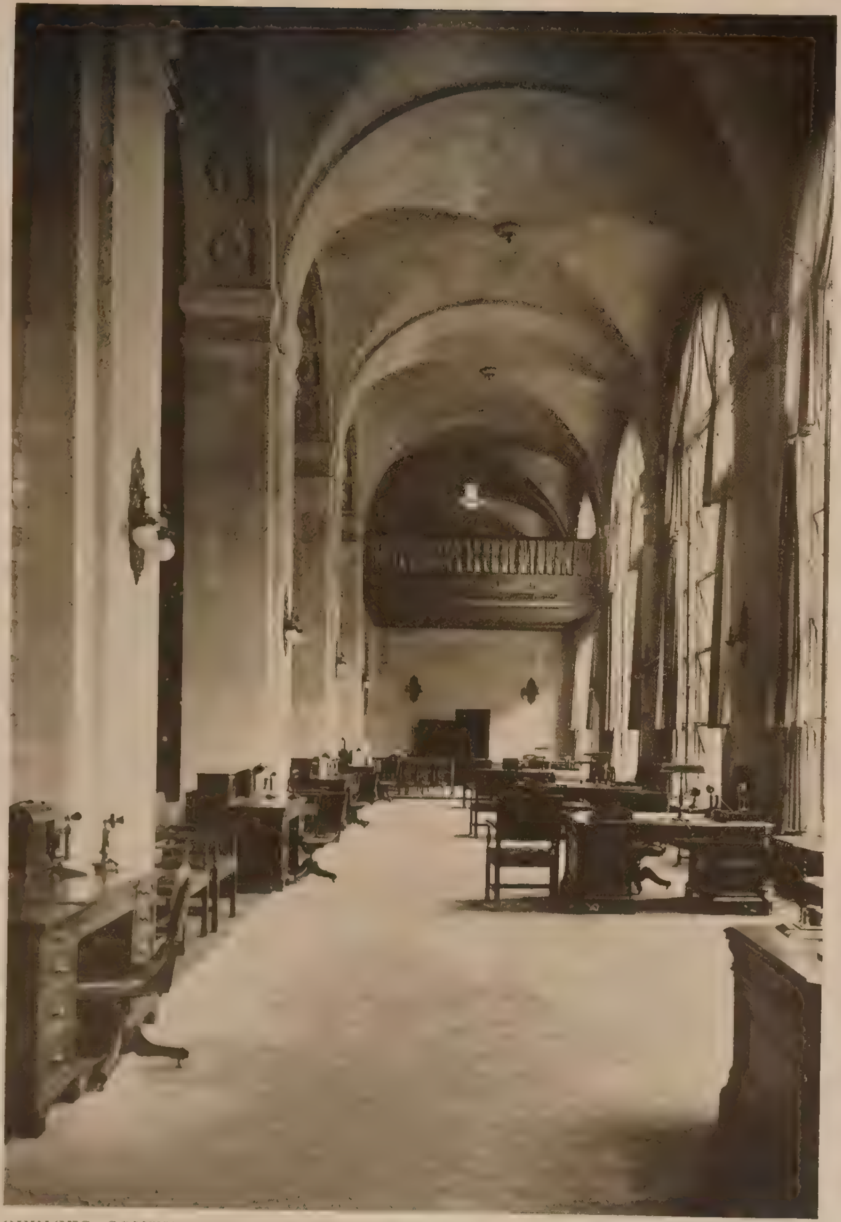


BANKING–ROOM.

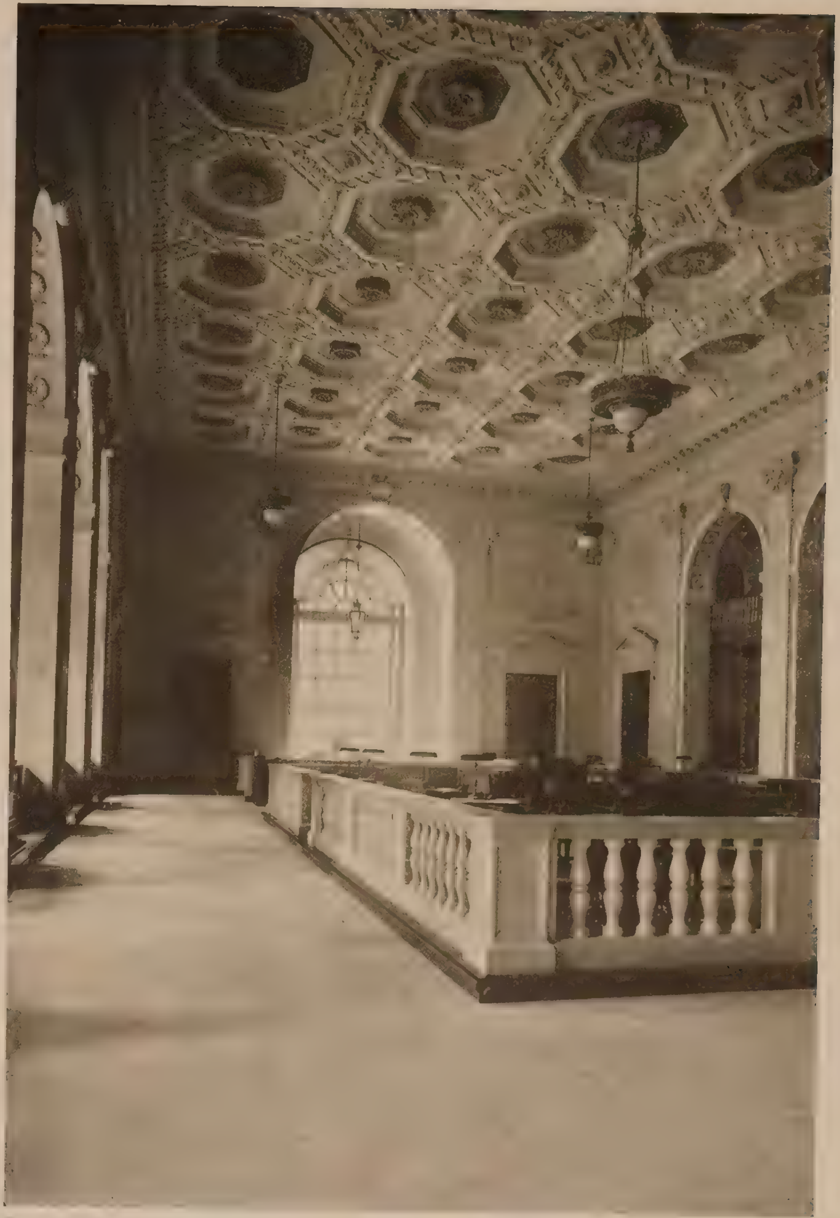


ENTRANCE STAIRWAY TO BANKING–ROOM. Warren & Wetmore, Architects.

BANKING-HOUSE, S. W. STRAUS & CO., FIFTH AVENUE AND 46th STREET, NEW YORK.



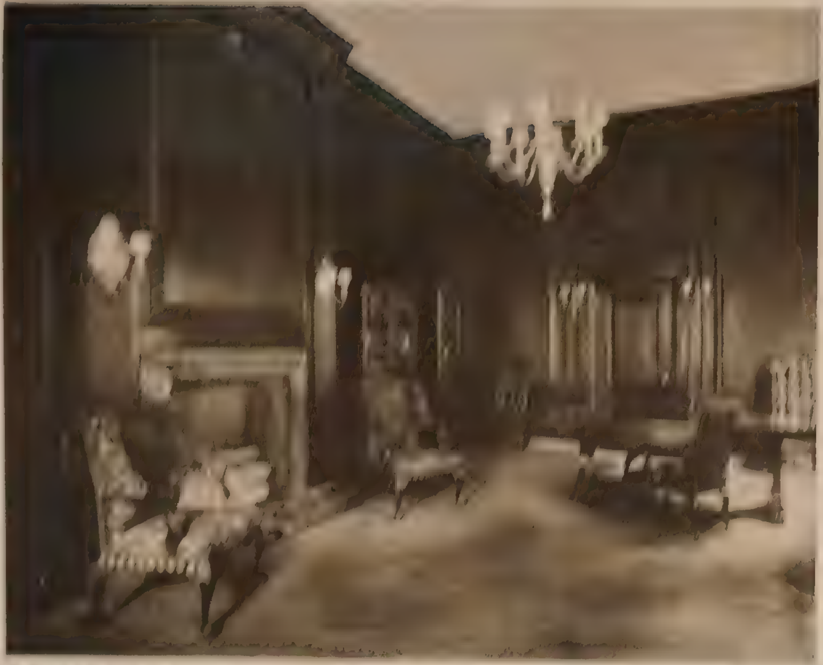
OFFICES, SOUTH SIDE OF BANKING FLOOR.



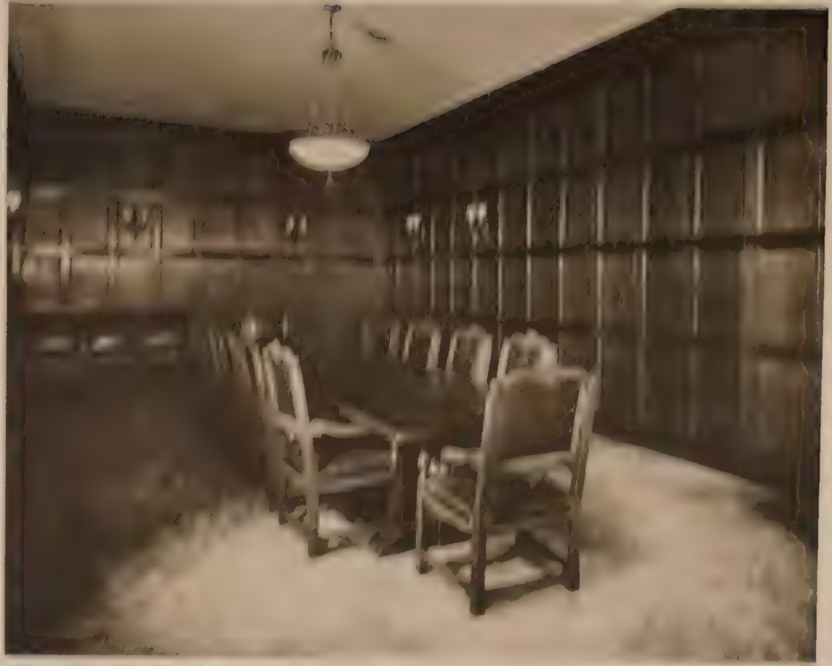
BANKING-ROOM.

Warren & Wetmore, Architects.

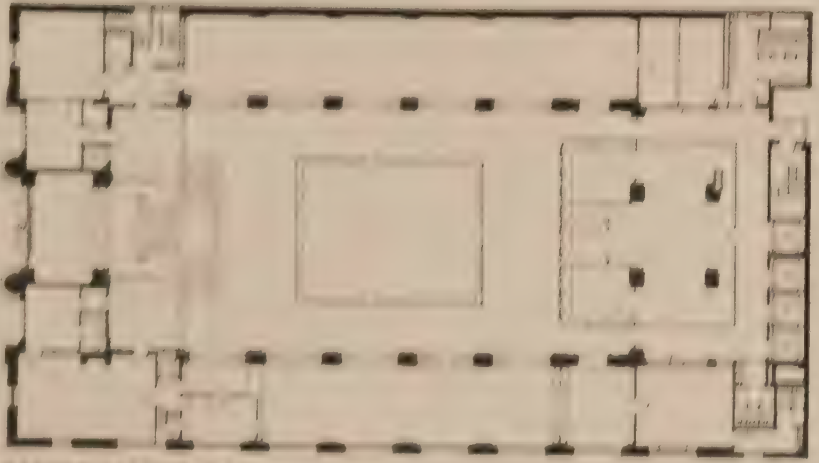
BANKING-HOUSE, S. W. STRAUS & CO., FIFTH AVENUE AND 46th STREET, NEW YORK.



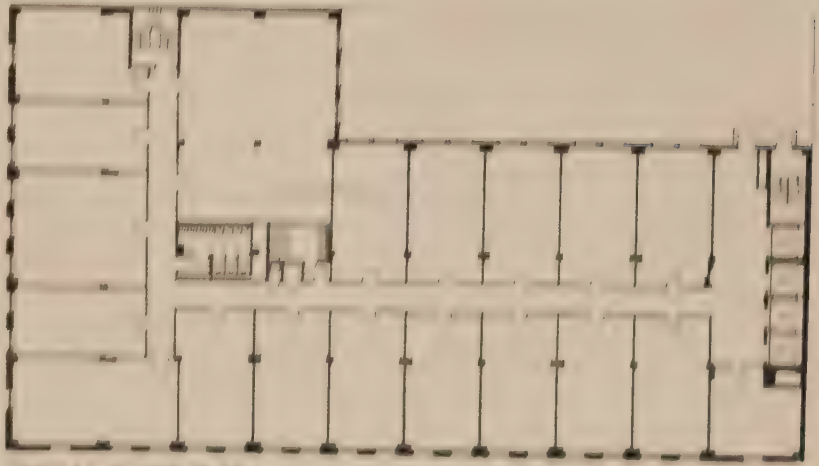
MR. [illegible] ROOM



DIRECTORS' ROOM



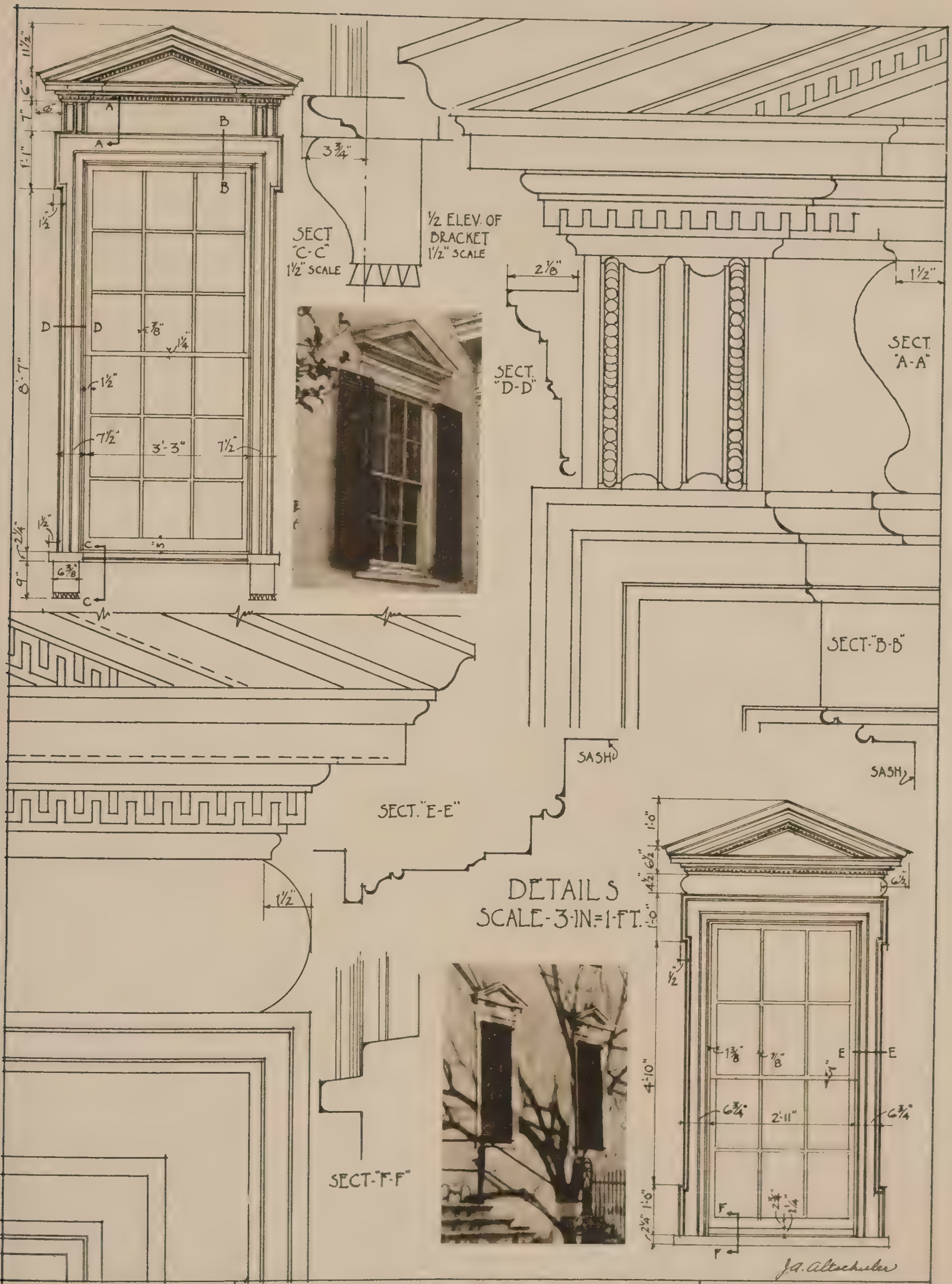
BANKING FLOOR PLAN



TYPICAL FLOOR PLAN

Warren & Wetmore, Architects

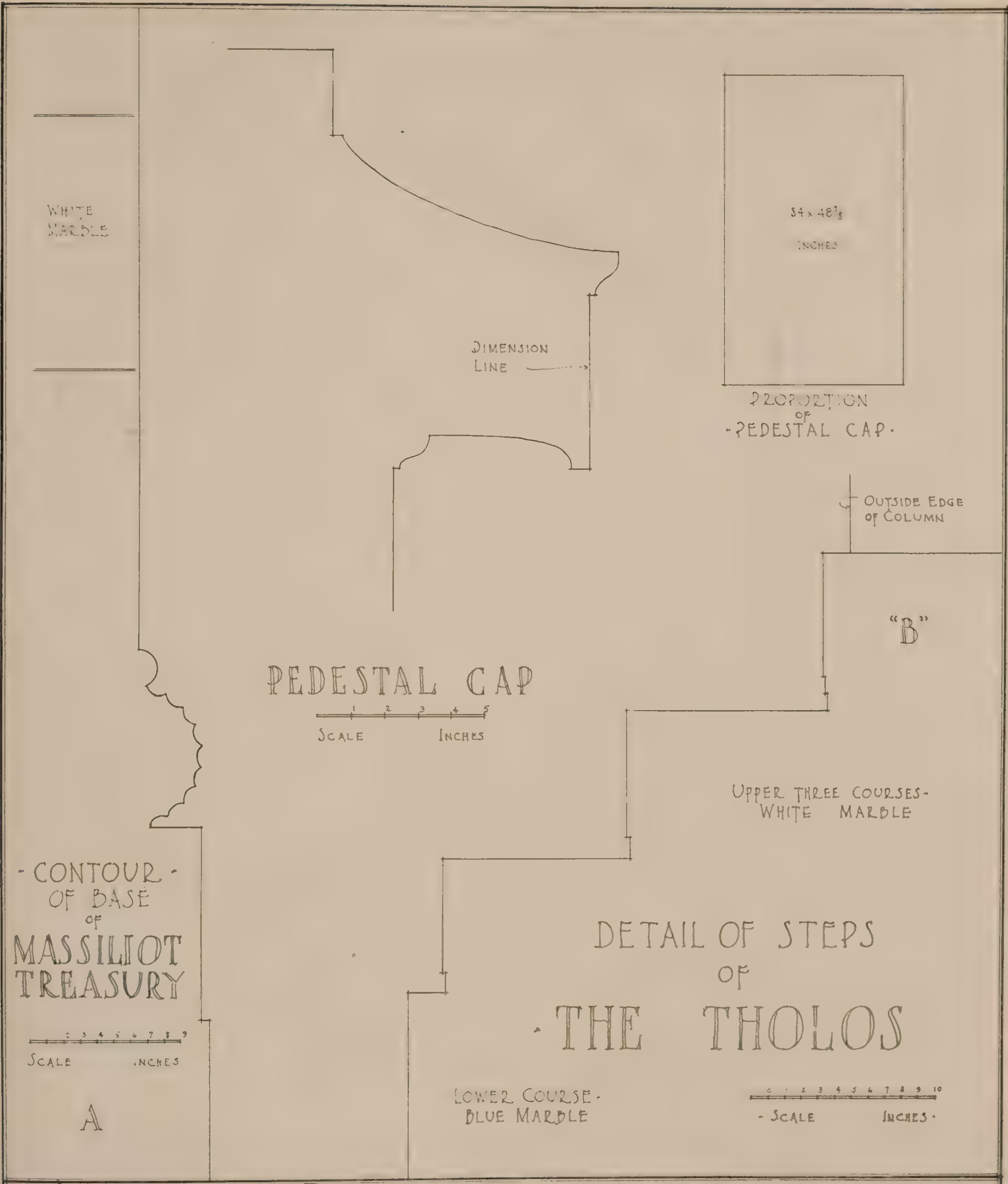
BANKING HOUSE, [illegible] & CO., FIFTH AVENUE AND [illegible] STREET, NEW YORK



COLONIAL ARCHITECTURE *of the* CAROLINAS

WINDOW - 1772 - 104 TRADD ST. CHARLES'N - S.C.
" 1801 - BRYAN HOUSE - NEW BERN - N - C.

MEASURED & DRAWN *by* J. A. ALTSCHULER

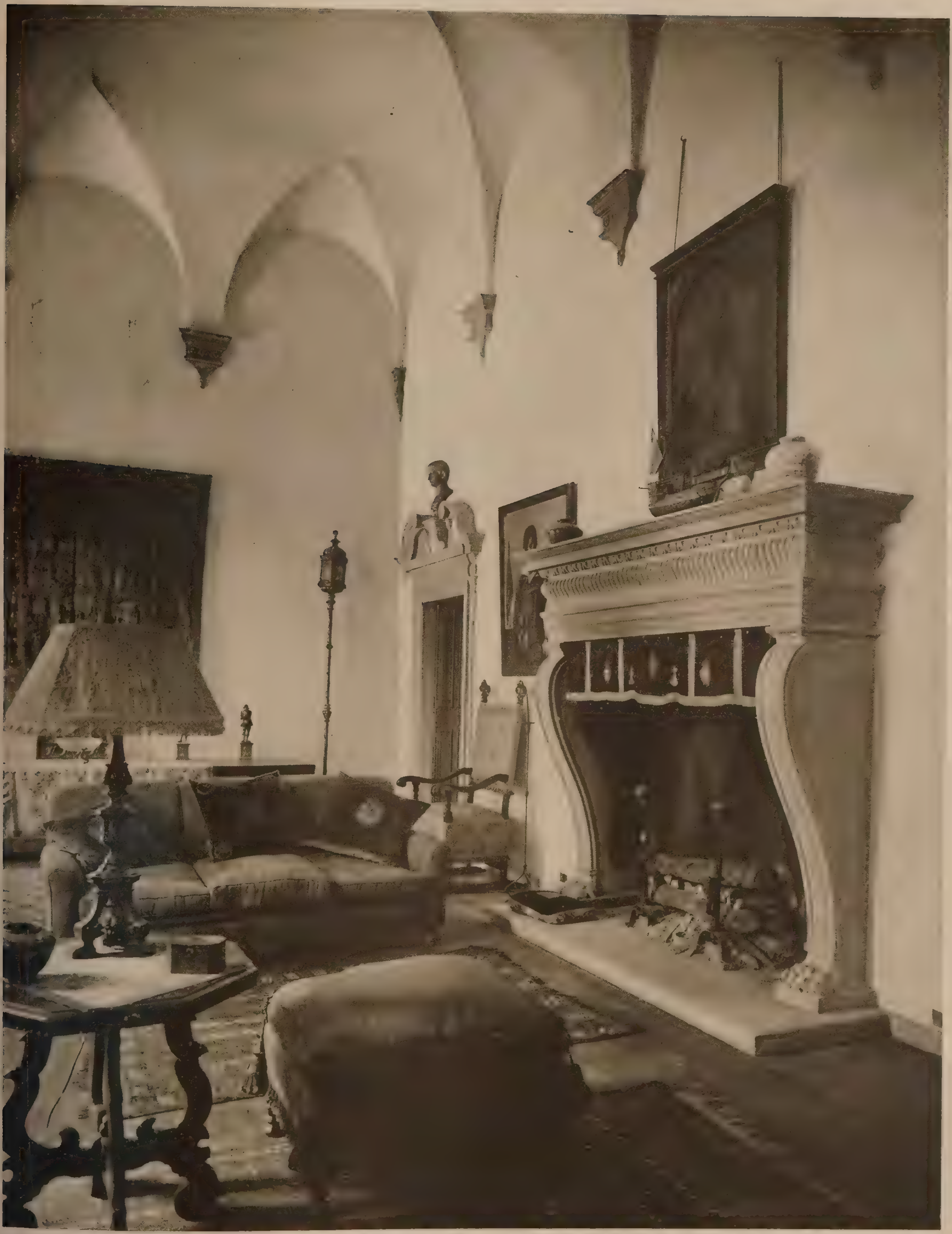


MEASURED DETAILS

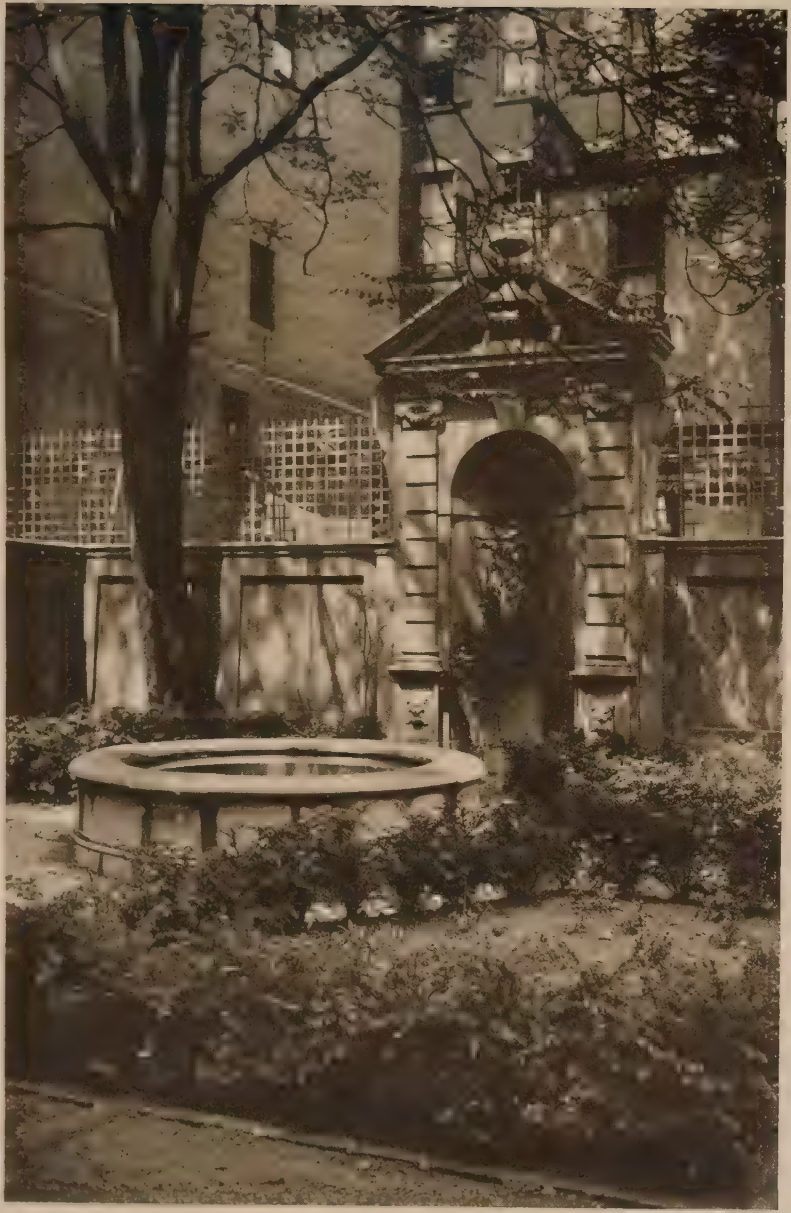
DELPHI GREECE

MEASURED AND DRAWN
BY
WILLIAM MACY STANTON

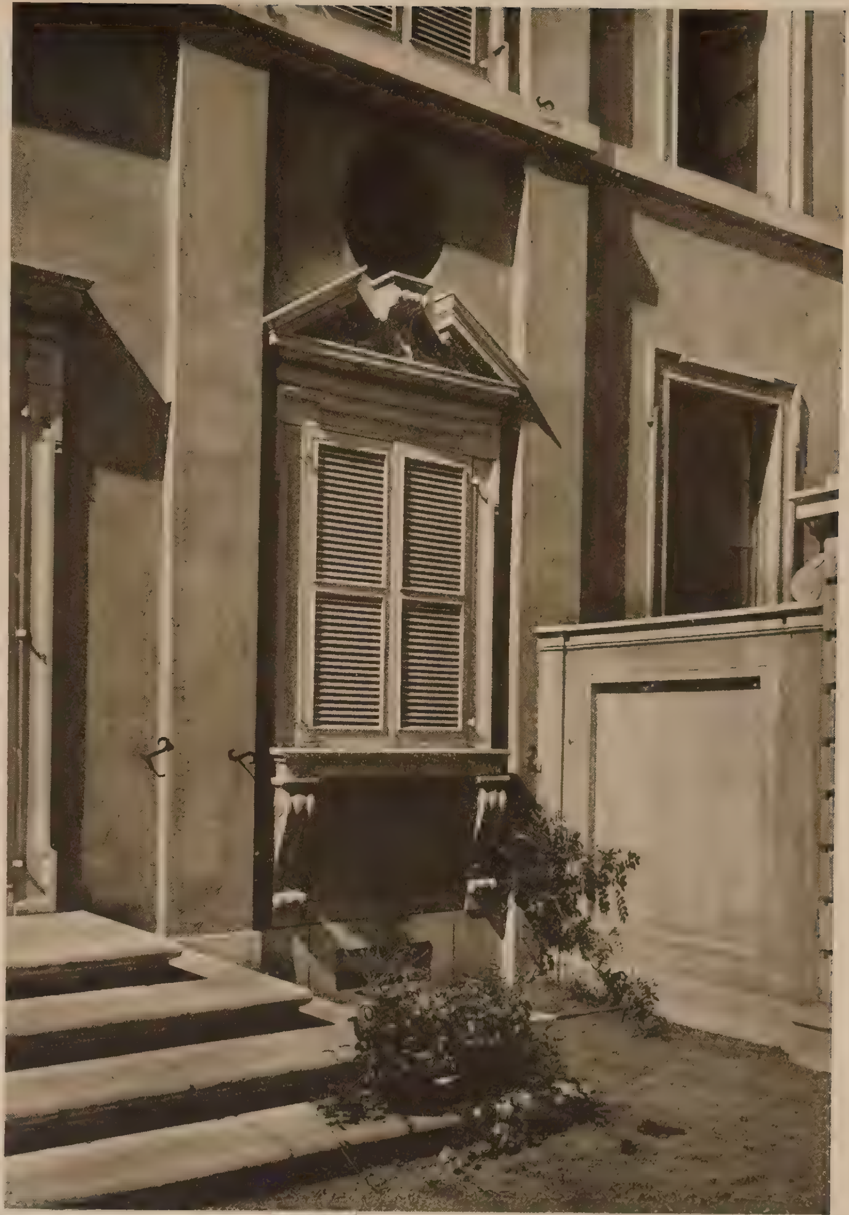
(See "Delphi and the Oracle," pages 231–234.)



LIVING-ROOM, RESIDENCE, MRS. ALICE McLEAN, 125 EAST 54th STREET, NEW YORK. De Suarez & Hatton, Architects



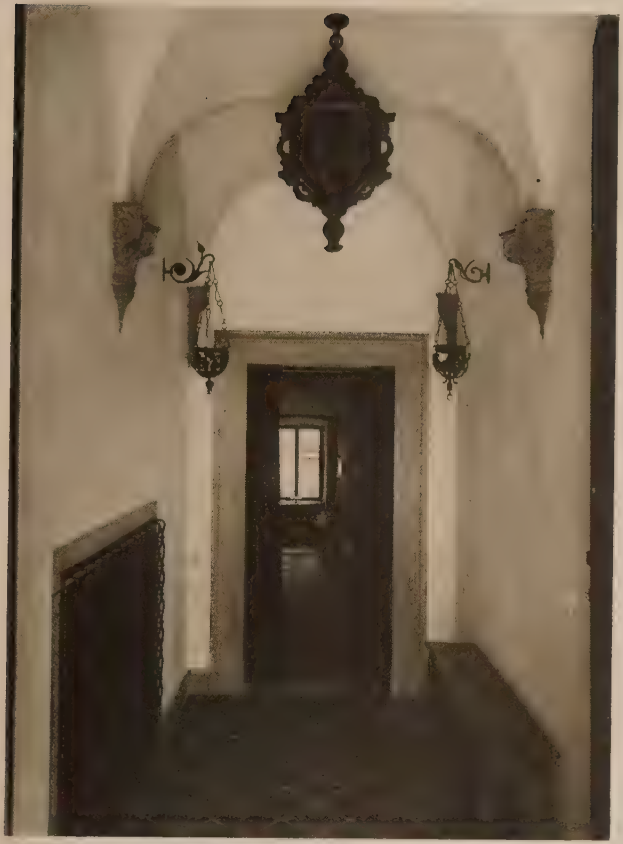
FOUNTAIN AND CENTRAL MOTIF OF GARDEN.



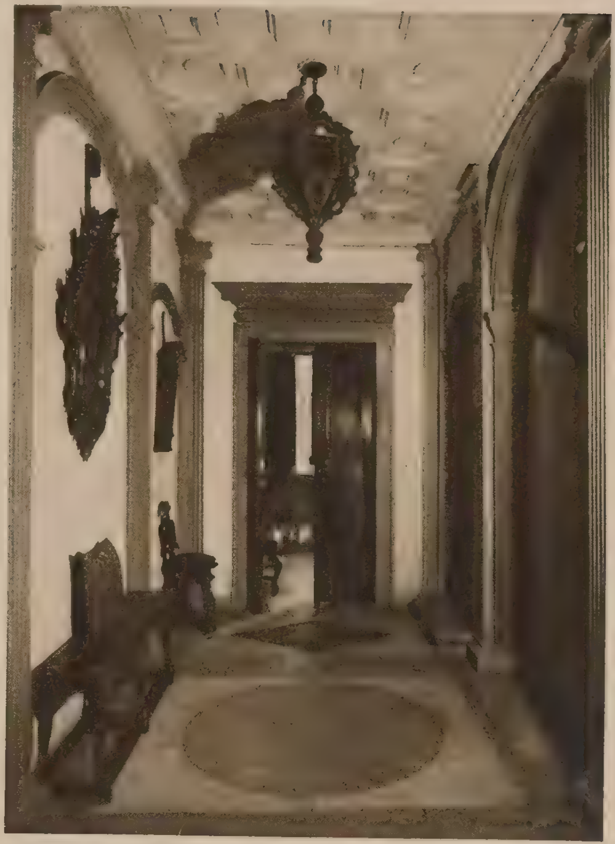
DETAIL OF DINING-ROOM WINDOW.

De Suarez & Hatton, Architects.

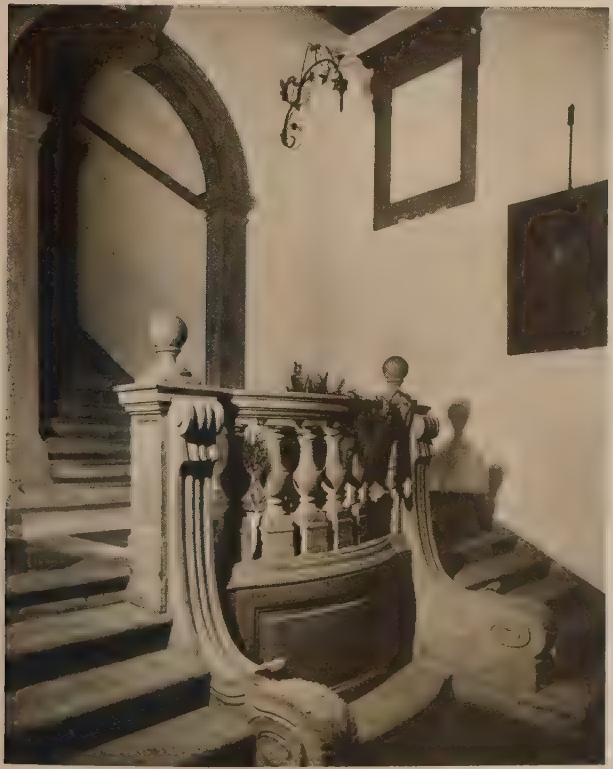
RESIDENCE, MRS. ALICE McLEAN, 125 EAST 54TH STREET, NEW YORK.



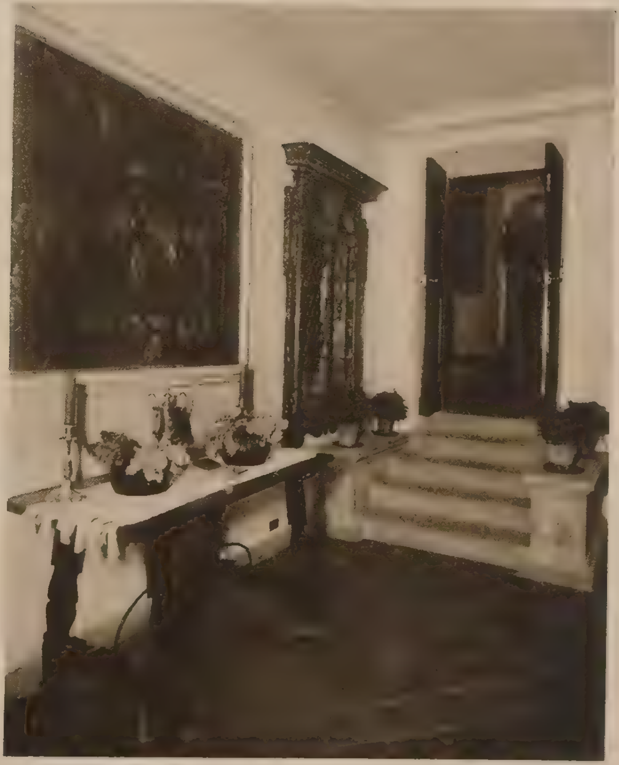
ENTRANCE PASSAGE.



HALL, FIRST FLOOR.



STAIR HALL.



DINING-ROOM LOOKING TOWARD STAIR HALL.

RESIDENCE, MRS. ALICE McLEAN, 125 EAST 54TH STREET, NEW YORK CITY.

De Suarez & Hatton, Architects.

The McLean Residence

De Suarez & Hatton, Architects

THE attempt to solve manifold problems and an effort to revive certain traditions and traditional expressions in architecture lends special interest to the structural alterations of this house. A glance at the plans does not apparently justify any reason why any or part of the two old brownstone houses, lying on the north side of East 54th Street, should have been kept as a foundation for the thoroughly modern residence, into which they have been transformed.

Yet in this use lies the particular interest of this piece of work. It has been the tendency in recent years to devote a great deal of architectural activity to the improvement of old New York real-estate property in the zones east of Park Avenue by transforming rather than rebuilding existing residences, and, in contrast with houses nearer Fifth Avenue, to take advantage of the open back yards to add to these modernized dwellings the hitherto practically unknown charm of a city garden.

Mrs. McLean's residence, although the word "alteration" hardly describes it, identifies itself closely with this programme. Covering as it does about half the area of the property, it leaves open for enjoyment a comparatively large space of ground in the rear, which, in the manner of a European city house, "hôtel particulier" or "palazzina," is overlooked by the main rooms of the house.

The use of stone detail contrasting with stucco and plaster surfaces, both internally and externally, would link it with the Italian tradition of substantial construction typical of the domestic as well as the monumental architecture in that country.

To obtain a few large rooms, as high as circumstances and proportions permitted, directness and simplicity of plan and a continuity of style in the treatment of decorative forms have been obviously the constant aim of the architects. In creating the impression of bare spaciousness and in seeking the value of a certain "emptiness," they intimately connected their work with the true expression given by the Italian architects of the best periods. Even when building on small scale, the masters of the past always seem to have conveyed the sense of bigness and the dignity of large, void spaces. This characteristic impression, given by the palace or the church, was reflected in the smaller dwellings, and, except where, as in the gaily decorated rooms of the baroque period, a frankly playful effect was looked for, the whole of Italian architecture is noted for its broadness and simplicity of treatment, as well as the admirable logic in the use of decorative detail.

The study of the forms, so seldom looked at or sufficiently appreciated, of that great period, which in architecture followed the Renaissance, has been a source of inspiration for the architects of Mrs. McLean's residence. Until recent years few have devoted much attention to this period and it is strange that it should have been so profoundly ignored and disregarded when, on the whole, the "Cinquecento" and "Seicento" offer us countless examples which could be wonderfully adapted to our modern needs and manners of living.

The masterpieces of Vasari, Ammanati, Buontalenti, Vignola, and others as late as Longhena and Bernini are, architecturally speaking, to the great public, only literary curiosities. It is to be regretted that the golden period of the Renaissance and even the late Gothic should have received so much attention from architects and students who apparently seldom realize the futility of a logical revival of their forms in our days; while buildings which offer unlimited material for adaptation remain entirely unknown. Tuscany, the Veneto, the Roman territory, offer endless buildings of all descriptions, country villas, town palaces, churches, gardens, and farmhouses, a veritable gold-mine as yet almost untouched.

The accompanying illustrations show the main points of interest in the house. The small vaulted vestibule gives direct access from the street to the central hall, twenty-four feet high, with vaulted ceiling and overlooked by windows from the library and living-room. A short flight of steps leads directly into the dining-room, all white stucco and "red Verona" marble trims and mantel-piece, and thence into the garden.

The main staircase starts from the hall, double at first, intramural in its second flight, and gives access to the upper hall, which opens directly on the library and reception-room on one side and the main living-room on the other. The ceiling of this room, twenty-two feet high, offers an example of Tuscan vaulting of the period, with the sharply defined edges of the penetrations.

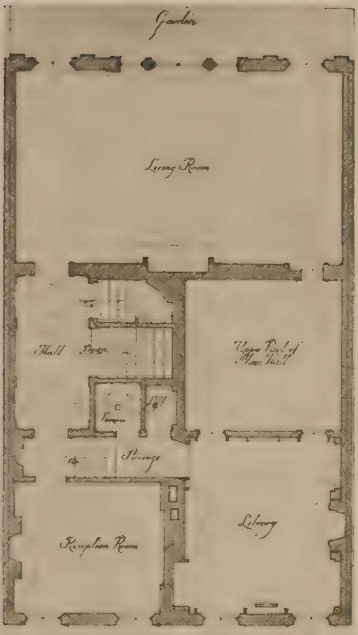
A minor staircase goes up to the owner's apartment boudoir, bedroom, and bathroom, worked out in the front of the house in the corresponding upper portion of the living-room in the rear.

An enclosed court, occupying the central portion of the house, comes down as low as the second floor and gives ample light to all inside rooms. The third floor of the house is entirely devoted to guest and bed rooms, and the fourth floor is occupied by servants' rooms and a laundry. The lift and service staircase are entirely enclosed in terra-cotta partitions, forming a sort of fire tower in the centre of the building.

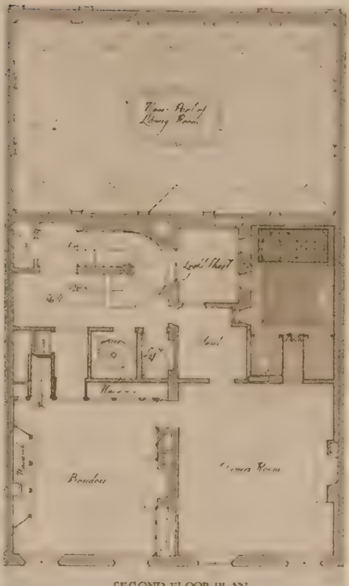
The artificial blue stone used throughout the house, contrasting sharply against the white stucco in the interior, is about the same shade of color as the one typically used in Florence.

The bedrooms are mostly colored stucco with a cove instead of cornice carrying the material of the wall into the ceiling. The stucco on the front and rear façades is light orange in color.

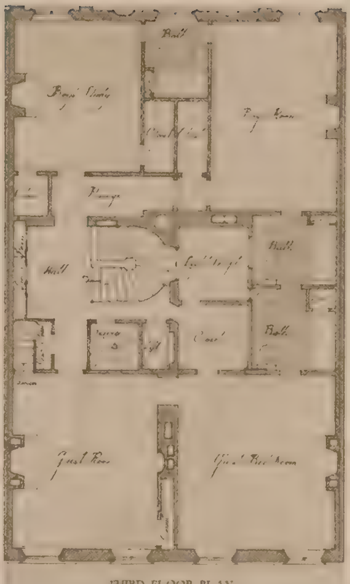
The owner's bathroom walls and vault are very light pink, and the floor and lining of the sunken bathtub have been carried out in Tunis tiles.



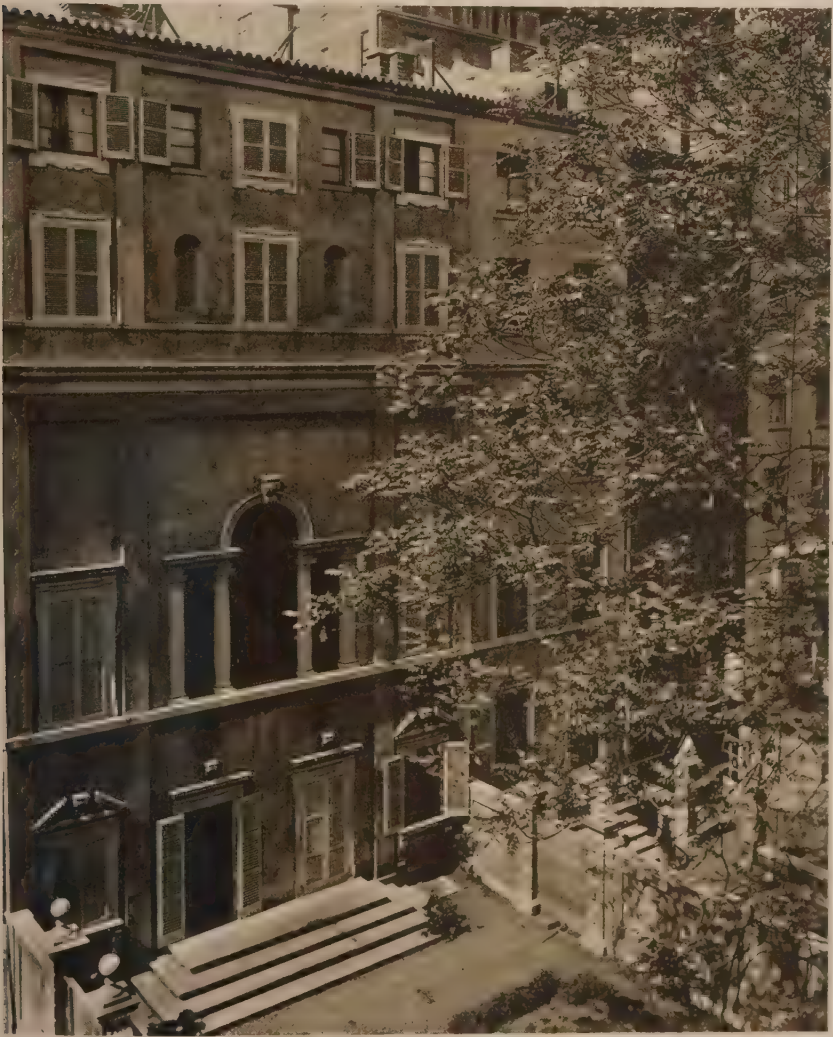
FIRST FLOOR PLAN



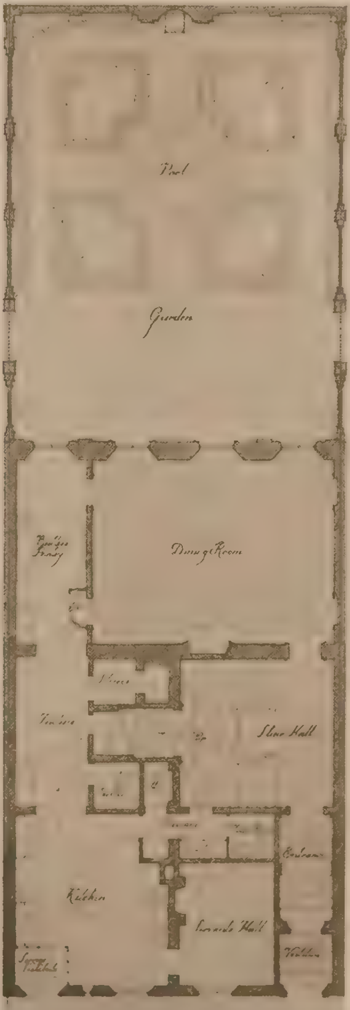
SECOND FLOOR PLAN



THIRD FLOOR PLAN



REAR OF HOUSE AND GARDEN.



GROUND FLOOR PLAN

De Suarez & Hatton, Architects.

RESIDENCE, MRS. ALICE McLEAN, 125 EAST 54TH STREET, NEW YORK CITY.

Concrete Construction

By DeWitt Clinton Pond, M.A.

SEVENTH ARTICLE

IN the section of the 395 Hudson Street Building which has been under discussion in the previous articles, there are nine panels and sixteen columns. The design of the columns has been investigated as well as that of the footings under most of the columns. There remain three footings, under columns 13, 14, and 15, to be checked. The footing plan, shown in Fig. XI in the fifth article of this series, as well as the detail of the continuous footing under these columns, indicates that the part of the footing between columns 15 and 14 should be considered as continuous, while that part between columns 14 and 13 would be semi-continuous, and the part at the end beyond column 13 is a cantilever.

As in the case of the continuous footing under columns 9, 10, 11, and 12 an average load will be taken as applying to the design of the footing under columns 13, 14, and 15. The average load will be considered as 1,000,000 pounds and the weight of the footing itself as 90,000 pounds, making a total weight of 1,090,000 pounds.

The soil, being 4-ton soil, must have an area equal to 1,090,000 ÷ 8,000 = 136.2 square feet. As the columns are set 20 feet on centres the footings must be considered as only 20 feet long, so the width is found by dividing 136.2 by 20. This gives a width of 6.81 feet or 6 feet 10 inches. The actual area of the footing will be 136.6 square feet and as only the downward pressure of the columns is considered as producing shear or bending in the footing, the upward unit pressure of the soil which will have this effect will be 1,000,000 ÷ 136.6 = 7,320 pounds per square foot.

The first part of the footing which will be designed will be that part between columns 15 and 14, which will be considered as continuous. Fig. I, in the first article, showed the floor plan of the section of the building under consideration. In this figure is shown the wagon-court, and the columns adjacent to it are shown as having their long dimension perpendicular to the building line to give as much space in the wagon-court as possible. The width of the columns at the first floor was made 2 feet 6 inches. This width became 2 feet 10 inches in the basement. The clear span between columns becomes, therefore, 17 feet 2 inches. The load on this span will be 17.17 × 7,320 × 6.83 = 858,500 pounds. The condition of loading is shown in Fig. XVIII. It will be seen that the reactions are each one-half of this total load, or 429,300 pounds. The total moment is given by the following calculation:

$$429{,}300 \times (10 - 4.29) = 2{,}451{,}300 \text{ foot-pounds.}$$

To reduce this moment to inch-pounds and to the proper moment for a continuous footing it will be necessary to multiply by 12 and by two-thirds. This will give a moment of 19,610,000 inch-pounds.

At this point it might be well to check to find the proper depth of the footing. In order to do this it will be necessary to find the moment for each foot of width of the footing. The footing is 6.83 feet wide, so the moment per foot will be 19,610,000 ÷ 6.83 = 2,871,000 inch-pounds.

$$d^2 = 2{,}871{,}000 \times 8 \div 1{,}462.5 \times 7 = 2{,}250.$$
$$d = 47.5 \text{ inches.}$$

The total depth of the footing will be 4½ inches more than this, or 52 inches.

The remaining point to be considered is the determination of the stress in the steel. This is accomplished by multiplying the moment in inch-pounds by 8 and by dividing by $7d$.

$$S = \frac{19{,}610{,}000 \times 8}{7 \times 47.5} = 471{,}800 \text{ pounds.}$$

$$\frac{471{,}800}{16{,}000} = 29.5 \text{ square inches.}$$

If 29.5 square inches of steel are required, it will be necessary to have 19 bars measuring 1¼ inches square. Of these, 10 will be straight and 9 will be double bent. It will be necessary to add one bar at the bottom of the footing in order to have the same number of bars for the negative moment as for the positive moment.

The next step is the determination of the size and number of stirrups. The reaction at the columns was found to be 429,300 pounds. By dividing by the *effective* area—$\frac{7}{8}$ *bd*.—it will be possible to determine the shear per square inch.

$$429{,}300 \div (\tfrac{7}{8} \times 82 \times 47.5) = 123 \text{ pounds per square inch.}$$

This is slightly over the allowable shear for reinforced concrete as required by the Joint Committee, but for the purpose of this design it will be considered safe. Forty pounds will be allowed to the concrete and 83 pounds must be taken care of by the steel. The proportion of the length of the clear span over which the shear will be applied will be ratio between 83 and 123. The clear span in 17.17 feet or 206 inches and the width of the footing is 82 inches, so the number of square inches over which the shear will act will be found by the following equation:

$$\frac{83}{123} \times 206 \times 82 = 11{,}400 \text{ square inches.}$$

The *average* shear per square inch over this area is 41.5 pounds, and the total shear will be 11,400 × 41.5 = 473,000 pounds.

The stirrups are made up of ½-inch round rods bent so that there are four vertical legs and having a total area of steel of .7852 square inches. The steel, having a value of 16,000 pounds per square inch, will have a value of 12,580 pounds per stirrup. As there are 473,000 pounds to be counteracted by the steel it will require 473,000 ÷ 12,580 = 38 stirrups, provided that the stirrups alone were to act. However, the bent-up steel is effective for the purpose of withstanding horizontal shear.

There are 9 bent-up bars each having an area of 1.5625 square inches. The total area of these bars is 14.06 square inches. Seven-tenths of this area is 9.84 square inches, which is the effective area of the bent-up steel for resisting shear. One stirrup has an area of .7852 square inches, so the bent-up steel will have an area equivalent to 12 stirrups. The steel is bent up at both ends and therefore it will take the place of 24 stirrups in the length of the footing. It will

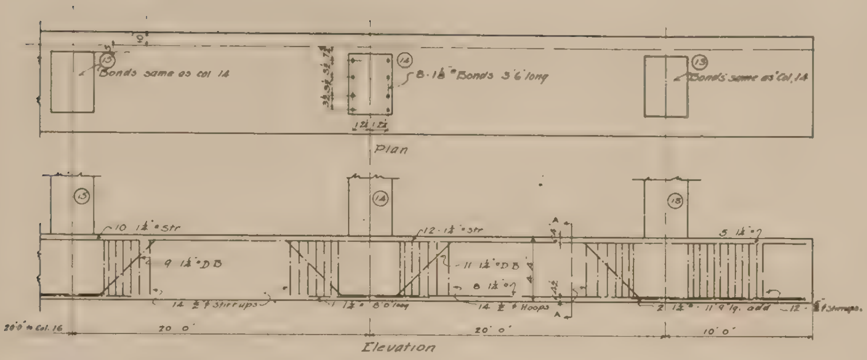


FIG. XVII

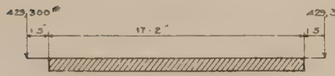


FIG. XVIII

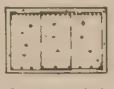

Section A-A

FIG. XIX

be necessary to have only 38 − 24 = 14 stirrups between columns, or 7 at each end.

It might be well to note at this point the reason for considering that seven-tenths of the bent-up steel can be used to withstand the horizontal shear. Theoretically, the steel is supposed to be bent up at the point of inflection, where the positive moment changes to negative or the negative changes to positive. At this point there is no moment at all and there is no stress on the steel at all. In practice this condition does not exist. However, it is safe to assume that at least one-half of the bent-up steel will not be stressed, and this half can be used to counteract the horizontal shear.

Now if the text-books are consulted it will be found that steel inclined at an angle of 45 degrees, in the same manner as the bent-up steel, is considered as being more efficient to resist the stresses set up by the shearing forces. The vertical steel is considered as being only .70 times as efficient, area for area, as the steel inclined at an angle of 45 degrees. The cosine of the angle is .70. Therefore, if the vertical steel is given a value of 10,000 pounds, the bent-up steel will have a value of 14,300 pounds. If one-half of the bent-up steel can be used to withstand horizontal shear, then the same area of bent-up steel as of vertical steel will have an actual value of 7,150 pounds, or approximately seven-tenths of its area is to be considered as resisting the stresses set up by the shear.

Between columns 13 and 14 the footing can be considered as semi-continuous. The actual moment will be the same as found above, but in order to reduce it to inch-pounds and to the proper moment for a semi-continuous beam it will be necessary to multiply the moment—2,451,300 foot-pounds—by 12 and by $\frac{4}{5}$. This will give a moment of 23,532,480 inch-pounds.

$$S = \frac{23,532,480 \times 8}{7 \times 47.5} = 566,000 \text{ pounds.}$$

$$\frac{566,000}{16,000} = 35.4 \text{ square inches.}$$

$$\frac{35.4}{1.56} = 23 - 1\tfrac{1}{4}\text{-inch square bars.}$$

Of the 23 bars necessary to withstand the tension in the upper part of the footing between columns 12 will be straight and 11 will be double bent. Under column 14 it will be necessary to add 3 straight bars, as there are 11 bent down at the right and 9 at the left, making a total of only 20, and the 3 additional bars will be required to give a total of 23.

As the stress in the steel has increased as the footing is regarded as a semi-continuous beam, in a like manner the compression in the concrete also increases. Assuming that the compression in concrete is equal to the stress in the steel it will be found that the concrete is overstressed 566,000 − 471,800 = 94,200 pounds. It will be necessary to add some bars at the bottom of the footing to withstand this compressive stress. These bars will be placed 4 inches above the bottom of the footing.

As stated in the last article, the allowable stress in the steel is found by the formula, $S_1 = n \times fc$. n will be taken as equalling 15, f will be considered as 650, and as three-eighths of 47.5 equals 17.8, the ratio c will equal 13.8 divided by 17.8. By substituting these values in the above equation the value of S_1 will be found to be 7,560 pounds per square inch. If it is necessary to supply steel to withstand a compressive stress of 94,200 pounds there will be required 12.3 square inches of steel and this can be provided if eight 1¼-inch square bars are placed in the bottom.

There is no particular problem encountered in the design of the stirrups except that in the present case there should be hoops provided in place of stirrups, as it will be necessary to tie in the steel at the bottom of the footing. The hoops will be made up as shown in the section in Fig. XIX.

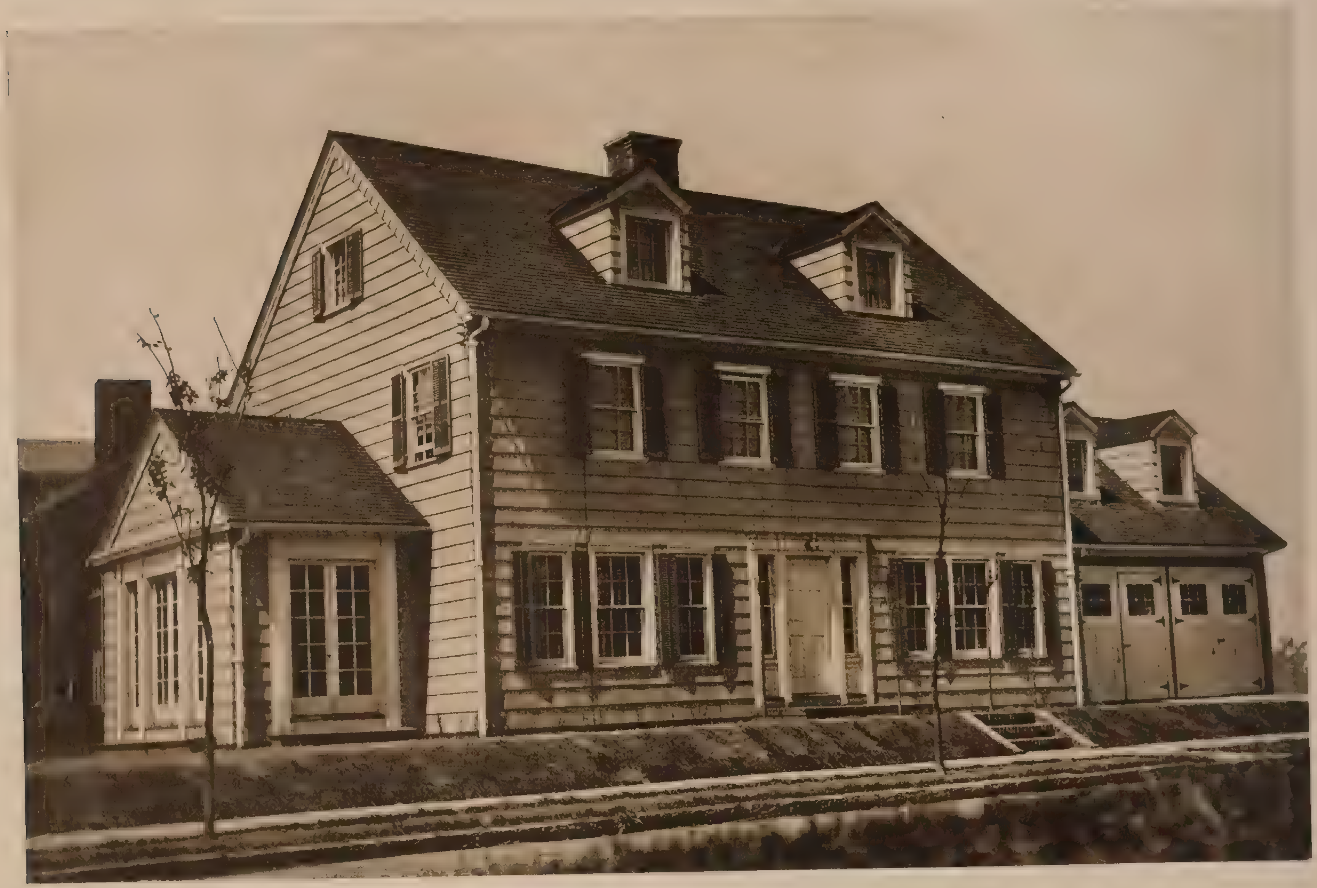
It will be noticed that the end of the footing projects beyond column 13 and this acts as a cantilever. As the sections under the columns are considered as being 20 feet long, the end will project 10 feet beyond the centre line of the column, or will have a clear span of 8 feet 7 inches. The pressure of 7,320 pounds per square foot against this end will give an upward pressure of 429,300 pounds.

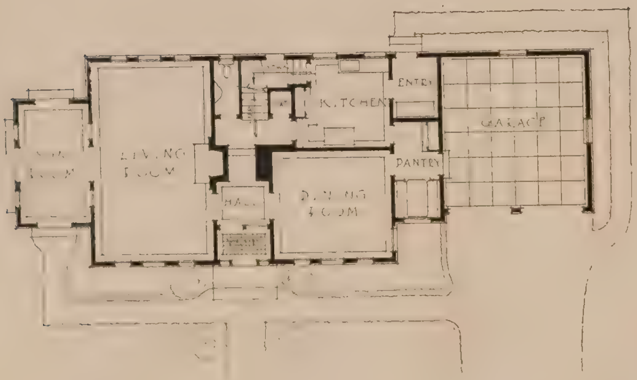
The moment of this around the edge of the column will be 429,300 × 4.29 = 1,841,000 foot-pounds, or 22,100,000 inch-pounds. By multiplying this by eight-sevenths and by dividing by the depth—47½ inches—the stress in the steel will be found. $(22,100,000 \times \frac{8}{7}) \div 47.5 = 533,000$ pounds. $533,000 \div 16,000 = 33.3$ square inches of steel required. This area can be supplied by 21 bars, 1¼ inches square.

By referring to the plan and elevation in Fig. XVII it will be seen that the eight 1¼-inch square bars that are used to reinforce the bottom of the footing against compression in the concrete are run through to the end. It will also be seen that there are 11 double bent bars, making a total of 19 in all. To these it will be necessary to add two more to have the total of 21 as required.

The stress in the steel was found to be 533,000 pounds, and if a like stress is found in the concrete this will be overstressed 61,200 pounds. As the steel in compression is capable of withstanding a stress of 7,560 pounds per square inch, there will be 7 square inches of steel required, and this can be supplied by five 1¼-inch square bars.

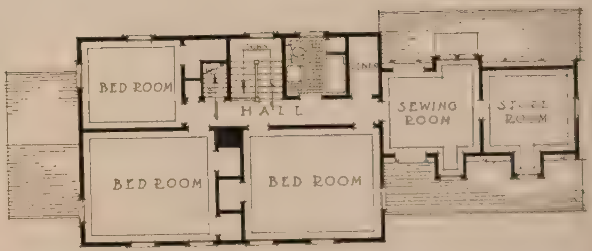
It will be noticed that there are a large number of stirrups at the end and that these are made of ⅜-inch round rods. The reason for the need of the 12 large stirrups is that there is no bent-up steel in the end and it is necessary to take up all the horizontal tension by means of the stirrups. The rods have a cross sectional area of .3068 square inch, and as they are bent so that there are four vertical legs the area of steel per stirrup is 1.2272 square inches. The resistance to horizontal tension per stirrup is 19,630 pounds. There will be one-half the shear at the end, as was found between the columns, so there will be required 236,000 ÷ 19,630 = 12 stirrups.





FIRST FLOOR PLAN ·

SCALE



SECOND · FLOOR · PLAN ·

HOUSE AND PLANS, U. G. FREDERICK, AKRON, O.

Albert Houghton Good, Architect.

The Housing Development at Olean, N. Y.

Alfred C. Bossom, Architect

THIS country owes an enormous debt of gratitude to General U. S. Grant. He reduced a great fundamental to a very few words when he stated that "The way to resume is to resume." He, of course, alluded to the gold currency, but every community has been in the same position of late regarding their housing condition. It has been impossible to go anywhere without hearing complaints regarding the unsatisfactory housing facilities existing, but very little has been done to overcome it in the majority of places. But Olean, New York, realized the need, retained an architect, and went ahead, and in doing so adopted an unusual procedure.

The Chamber of Commerce looked around and found out their townsmen and men with real practical horse-sense regarding buildings. Next, they all got together and mutually agreed that the benefit to themselves and to the town would be so great that each one who could supply any material toward the undertaking would do so at the very minimum of cost, and that they would build the houses themselves without any general contractor. The development of the town had set in in the past in a certain direction, and so just beyond this, and right along the line of the main thoroughfare a large tract of rolling land was selected and purchased without paying any extravagant prices.

The roads were laid out to fit the contours of the land, and houses were designed to fit the requirements of the people. In these houses the "handy-kitchen" is a great feature. Within this are built fitments which give the housewife every convenience ready to her hand. She has no avoidable steps, and there is a place for everything, and if she will only keep everything in its place she will have a new point of view regarding the pleasures of housekeeping. Another feature that is very conspicuous, as will be seen by the plans, is the combined living and dining room. In houses of this size this is the logical way of handling such a problem. How frequently do we go into houses that are built for housing where the room that was originally intended to be a living-room is used as a bedroom? Why not design it originally so that it will logically be a bedroom if required?

When the houses were first laid out many studies were made to see if they should be in concrete, stucco on terra-cotta, stucco on metal lath on a wooden frame, or typical balloon frames with shingle and clapboard exteriors. After figuring around all ways it was found that for speed of construction and economy the entire wood house would show the best results, and it seemed to combine in itself more of the desirable qualities needed by the people locally. Again, when this point was reached an effort was made to cut off every unnecessary cornice, all posts were simplified, and the beauty of nature was introduced by placing flower-boxes on conspicuous spots and trellis-work in others where it would get results at no expense. Houses of a similar nature to these are costing, and have cost, in the neighborhood of ten thousand dollars ($10,000) each when their general proportionate cost on the improved property is also considered, but in this case the average cost does not exceed five thousand dollars ($5,000), and when this is realized in relation to all of the outcry that has gone up as regards the high cost of building, it demonstrates that if the matter is carried forward on logical lines, with profiteers excluded, and an honest day's work done for an honest day's pay, it is possible and practicable to go right ahead and build buildings at a proper price.

The type of houses consists of five-room double houses, six rooms and seven rooms, varied in many ways so as to make innumerable types. The entrances are always located in a manner giving a closet to hang a coat in right away. The living-rooms are big, commodious rooms, and the staircases are arranged with the object of not making them expensive constructions.

Again, every house is laid out to be heated by a "pipeless heater," which, of course, does put a certain limitation upon the arrangement, but if it is handled with care it can be a beneficial limitation, and not otherwise. All the lumber is supplied by townspeople at a most attractive price, and in fact the hardware, the plumbing fixtures, electric fixtures, all have been provided on the theory that the benefit from the improvement to the community will be a part of the return that each contributor will derive.

Olean has set the country an example from which much can be learned, and the type of houses produced, many of which are now finished and ready for habitation, stands as a very fine monument of what can be done where there is the spirit to do it.

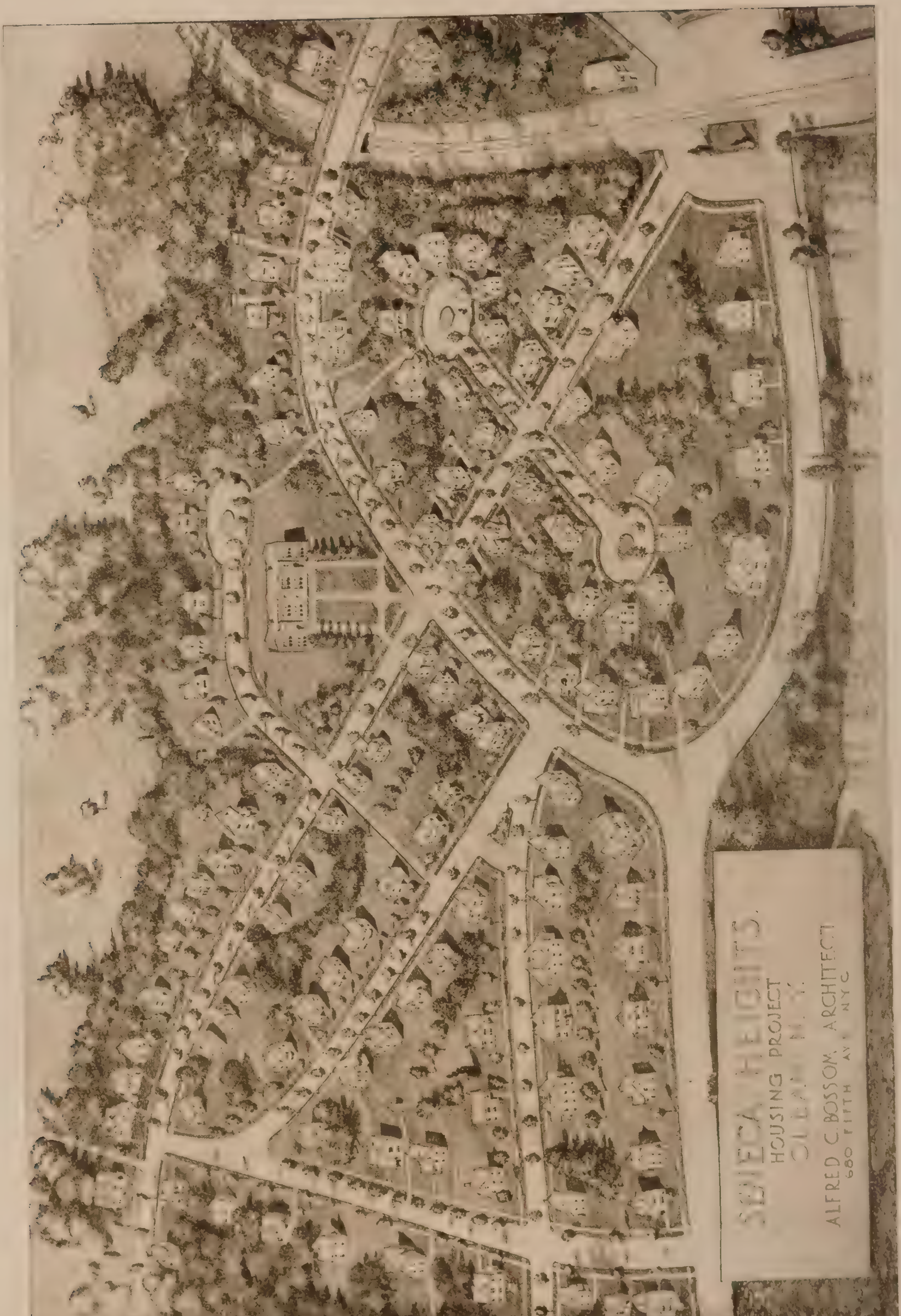
A "Dutch City" at Lens

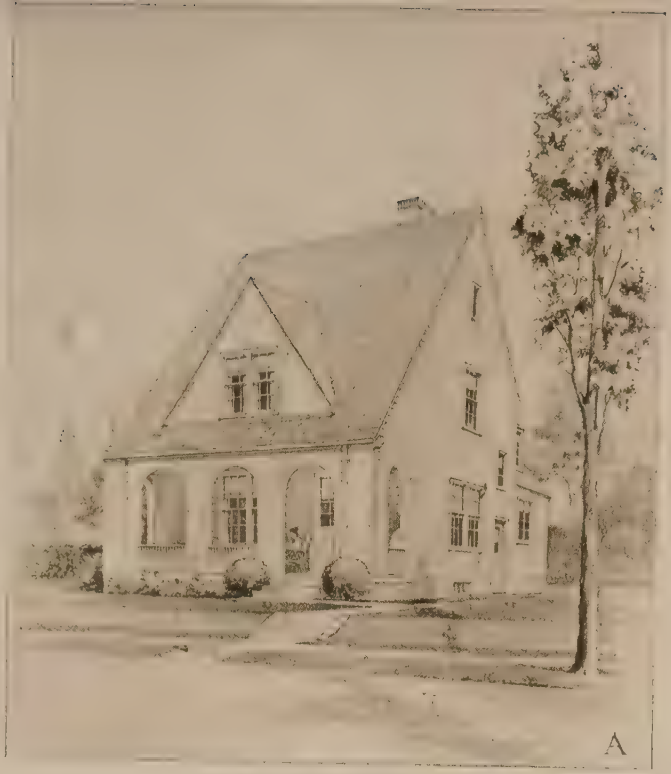
FRANCE is indebted to Holland for a very present help in time of need. At the conclusion of the armistice she offered the French Government necessary materials for the construction of more than five hundred houses, paying all transportation costs and supplying Dutch architects and builders to direct the work. The result is what is now known as the "Dutch City" on the Lille road at Lens.

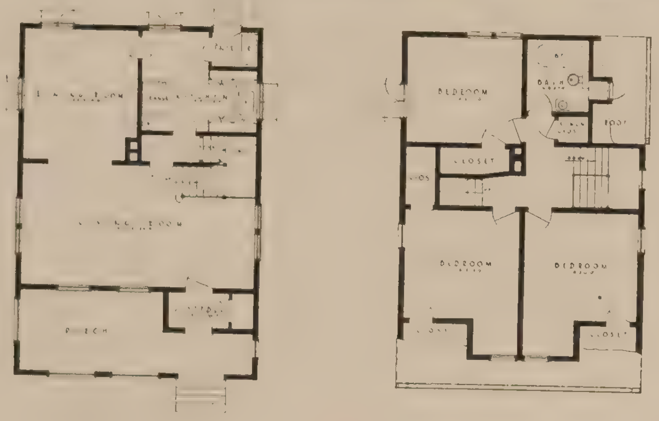
Each house is surrounded by a little garden, and schools, hotel, public baths, and shops have been constructed. Not only are the brightly painted houses all finished, but they are already inhabited by some two thousand persons; the shops are well stocked, the children are attending the three schools, workers passing through the city are received at the hotel, and the public hall is often the scene of cheery gatherings.

At Lievin, near Lens, a second and smaller Dutch city is in course of construction.

The architecture of Holland, as our readers know, is picturesque in its general lines, and the use of color adds a lively and individual character. As a matter of fact there are many houses in northern France that plainly show the Dutch and Flemish tradition. Holland has always known the decorative value of brick, and the charm of many quaint buildings along Dutch and Belgian canals is largely due to the patterns in brick that relieve what otherwise would have been but dull and barren façades.


SENECA HEIGHTS
HOUSING PROJECT
OLEAN N.Y.
ALFRED C. BOSSOM, ARCHITECT
680 FIFTH AVE NYC

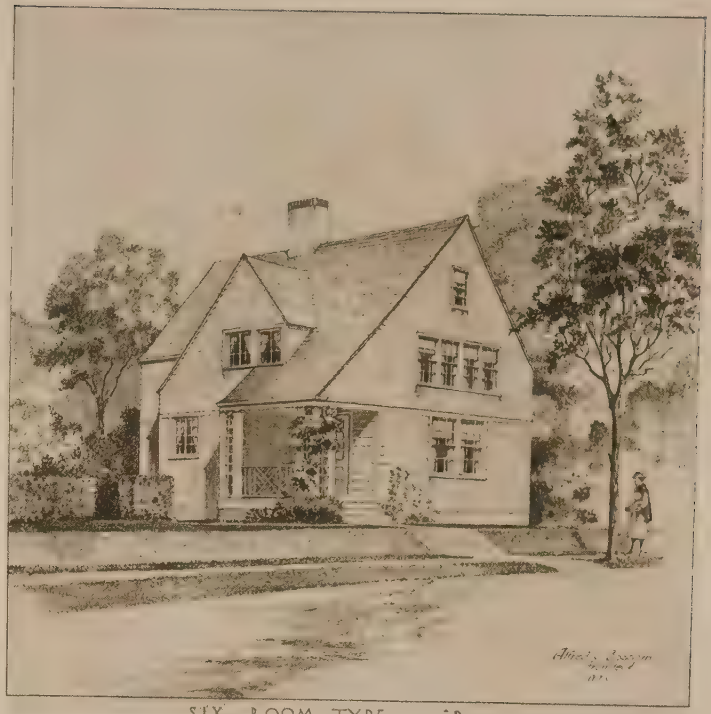




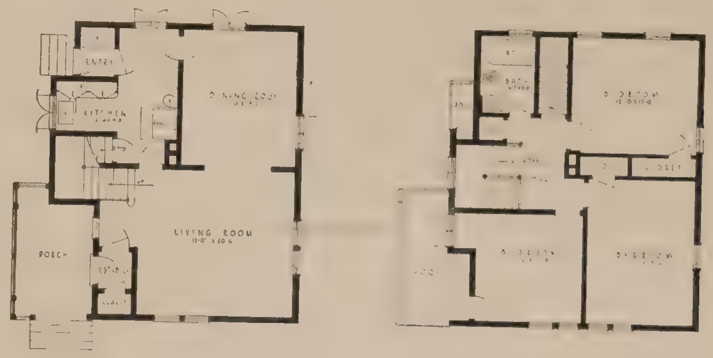
FIRST FLOOR PLAN

SECOND FLOOR PLAN

Alfred C. Bossom Architect N.Y.C. SIX ROOM TYPE Ⓐ


Alfred C. Bossom Architect N.Y.C.

SIX ROOM TYPE B



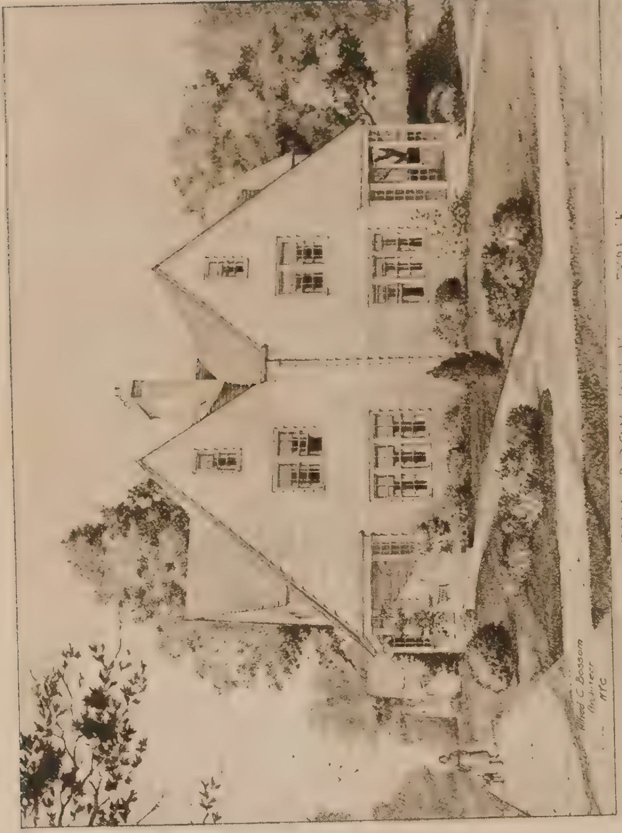
FIRST FLOOR PLAN.

SECOND FLOOR PLAN

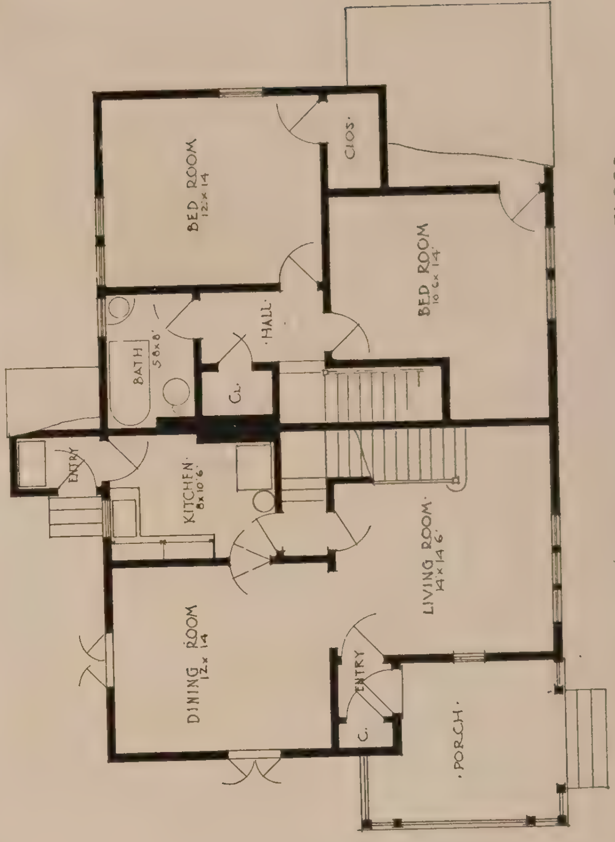
Alfred C. Bossom Architect N.Y.C. SIX ROOM TYPE Ⓑ

SENECA HEIGHTS HOUSING PROJECT, OLEAN, N. Y.

Alfred C. Bossom, Architect.



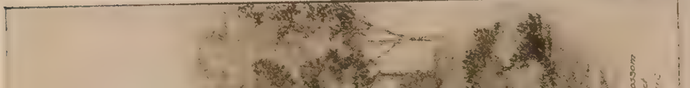
FIVE ROOM DOUBLE TYPE K



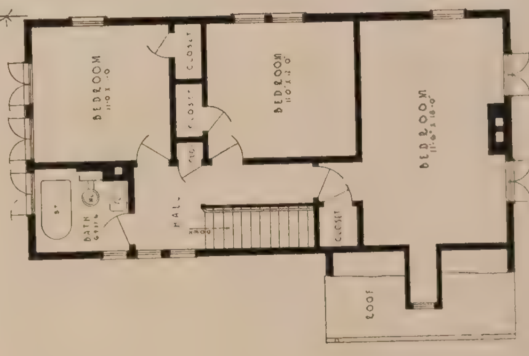
FIRST FLOOR SECOND FLOOR

FIVE ROOM DOUBLE TYPE K

Alfred C. Bossom Architect

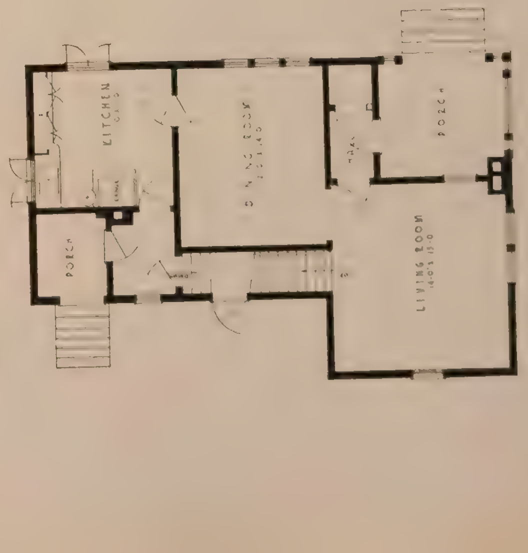


SIX ROOM TYPE 'E'



SECOND FLOOR PLAN

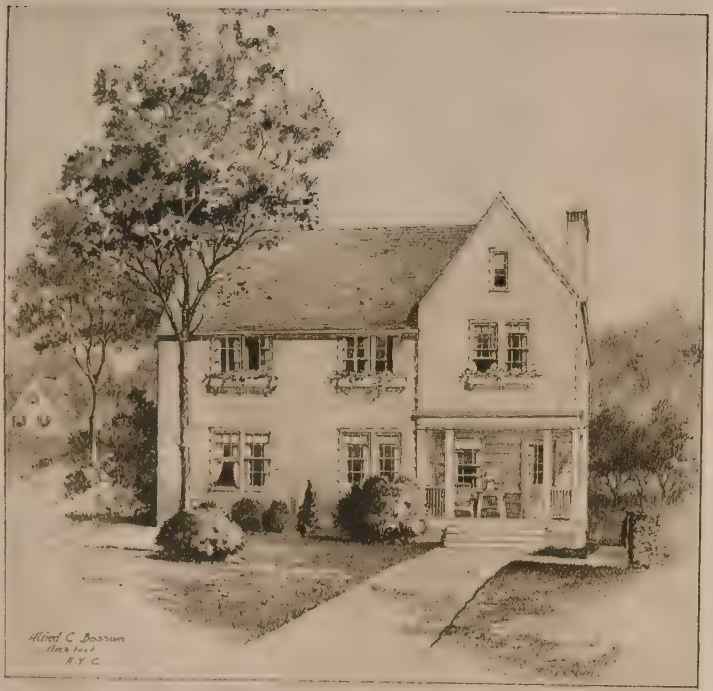
Ⓔ



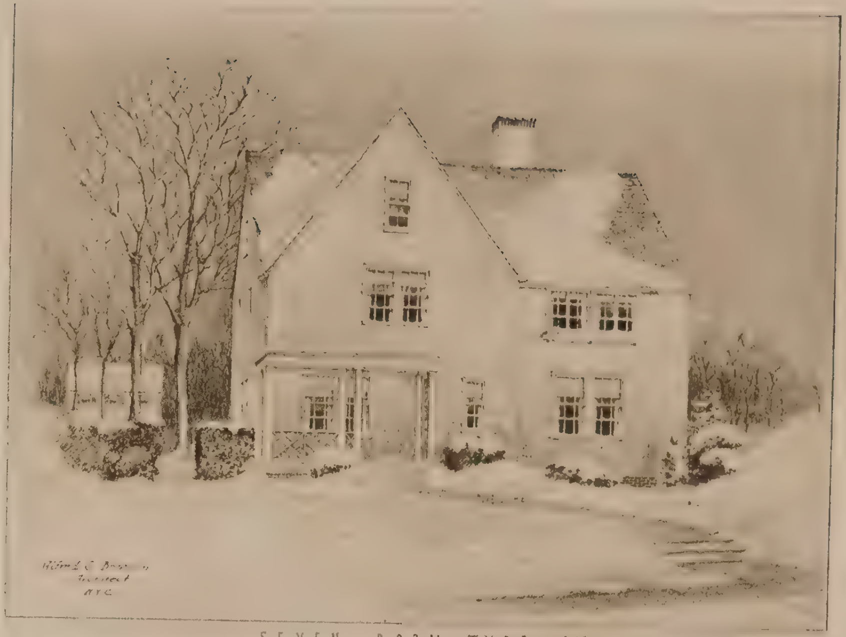
FIRST FLOOR PLAN

SIX ROOM TYPE

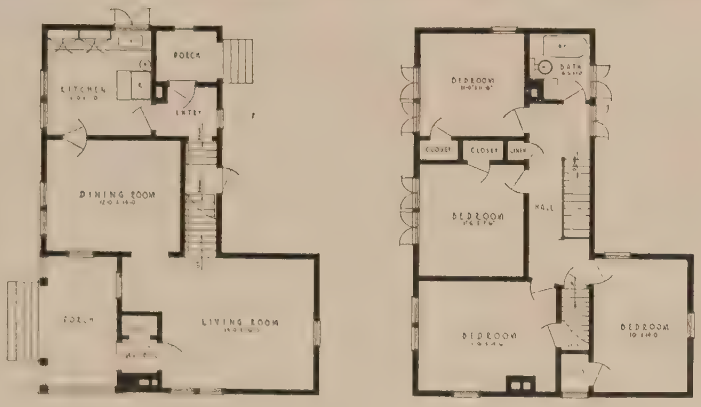
Alfred C Bossom



SEVEN ROOM TYPE 'M'

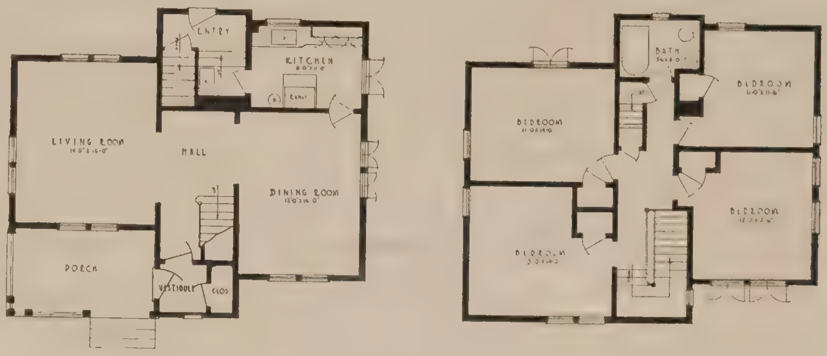


SEVEN ROOM TYPE 'N'



FIRST FLOOR PLAN SECOND FLOOR PLAN

Alfred C Bossom Architect N.Y.C. SEVEN ROOM TYPE Ⓜ



FIRST FLOOR PLAN SECOND FLOOR PLAN

Alfred C Bossom Architect N.Y.C. SEVEN ROOM TYPE N

SENECA HEIGHTS HOUSING PROJECT, OLEAN, N. Y.

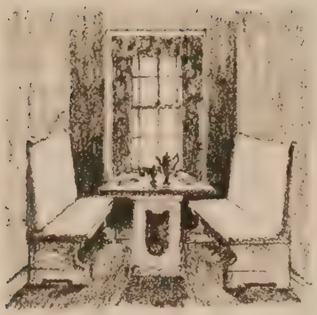
Alfred C. Bossom, Architect.

Construction of the Small House

By H. Vandervoort Walsh
Instructor, School of Architecture, Columbia University

ARTICLE XII

CONSTRUCTION OF THE TRIM


This is what the speculative builder spends money on

THE wood trim, the doors and windows, and the built-in furniture of the small house can make or mar its appearance more than any other one factor. Indeed, in no other form of architecture is the study of these details more important, and yet in no other type of building is the limitation of cost more exactingly imposed upon the architectural treatment of the trim.

By the very economy demanded in the small house, the architect must make the mouldings of his casing in the simplest possible forms. The trim around doors and windows on the exterior and interior can boast of no special mouldings. In fact the selection must be made from stock material or else the cost will be too great. Most planing mills have standard types of trim, but generally they are very badly designed. However, one cannot go wrong in using a plain board casing ¾ inch by 3⅝ inches, which has slightly rounded corners. The tops of doors and windows which have this simple casing should be capped with a fillet 7/16 inch, a head casing ¾ inch by 5 inches, and a cap mould 1⅛ inches by 2 inches. This eliminates the mitred corner, which is of such doubtful value in cheap work, since most wood trim is not properly seasoned and will quickly open all mitred joints.

To match this simple trim the window apron should be a plain board ¾ inch by 3⅝ inches, and the stool 1⅛ inches by 3⅝ inches. A plinth block at the base of the door trim in size 1⅛ inches by 3¾ inches by 7¼ inches will match up with a plain baseboard, ¾ inch by 7¼ inches, or one of similar size, with a cyma recta moulding on top.

If the local mill from which the trim is purchased has stock mouldings of pleasing design, the architect may safely specify them, but he should not make the economic mistake of demanding specially designed casing from full-size details of his own. The small house cannot stand this additional cost.

In selecting the trim, it is always important to bear in mind that it must harmonize with the walls and have no obtrusive appearance, since with the walls it affords a background for the furniture. In Colonial work the painting of the trim white, pearl-gray, or cream is always the most pleasing, and so the architect should select a wood which will best take the paint. White wood and white pine are ideal for this purpose. Gum wood is good, but there is always the chance that it will not hold its place and twist. Yellow pine is difficult to paint well, since the hard summer wood has a tendency to stand out beyond the softer spring wood, making the surface irregular; but this difficulty can be overcome if a number of priming coats are used to fill in the grain before the enamel is applied. But the architect should not make the mistake of finishing the painted trim with a glossy enamel, for this will destroy all the quietness and background effect of it. A matt surface of paint or an egg-shell enamel finish should be used.

This same principle should be followed in selecting and treating the hardwood casing which is not to be painted. The trim should never be finished with a bright, glossy varnish and stain, for nothing is more ugly in its final effect. Treat the hardwood trim, such as oak, chestnut, ash, and the like, with an oil stain; rub in a filler, stained slightly darker, and then shellac. Over this apply a wax finish, and rub this down with a shoe brush. Varnish manufacturers make grades of varnish which give the dull effect of wax, and these can be used, if desired; but why? Many prefer to even omit the shellac and depend entirely upon the wax for the gloss.

When trim is delivered to the job, it should not be stored in a damp place nor fitted in place before the plaster is entirely dry. In fact, in order to protect the trim from losing its shape, as soon as it comes on the job a priming coat, or filler, should be applied to it, and the ends and back painted with white-lead and oil. It will be noticed that all well-designed trim has a gouged-out space at the back to permit circulation of air around it, and also to make it easier to fit against a flat surface of plaster.

Mouldings for the trim of exterior cornices, string courses, and the like are often specially designed by architects for the small house, but it is a much better plan to use stock mouldings, selecting them to approximate the design that is desired. Through the efforts of many concerns the market affords many well-designed stock patterns of mouldings for exterior purposes. The idea is sound, and makes possible a great variety of designs through the standardization of parts, and at the same time cutting down the cost.

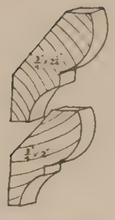
Likewise the standardization of doors and windows is another economic aid for the small house.

As a rule, all exterior doors should be at least 1¾ inches thick, and of white pine, painted. The veneered door is not a very satisfactory type for outside use, unless, perhaps, it is protected by the porch, for even with the best waterproof glue there is a considerable tendency on the part of the veneer to break away from the soft pine core. Some consider that the 1⅜-inch thick door is satisfactory for exterior doors in the small house, but, generally speaking, it is best to use this thickness only for interior doors.

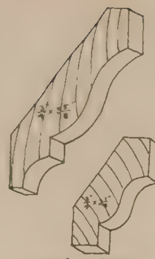
Softwood doors, 1¾ inches thick, have panels; if they are raised, only 1⅛ inches thick; while doors 1⅜ inches thick have raised panels only 9/16 inch thick, and flat panels 5/16 inch thick. The latter is quite evidently too thin for exterior doors.

Interior doors of veneered woods usually have flat panels, 5/16 inch thick, except the one panel door, which is as

(*Continued on page* 256.)



Stock Bed Mouldings

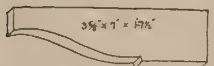


Stock Crown Mouldings

From "Standard Molding Book" Southern Yellow Pine

Stock Lattice

Top Rail for porch railing

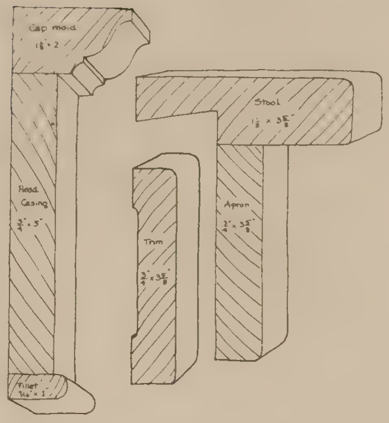


Bay Bracket

Porch Newel 5½ x 5½

A good type of stock column

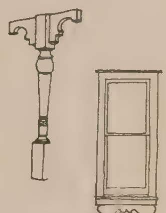
From Curtis Co



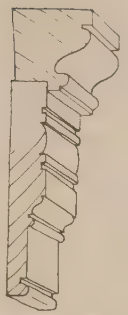
A good Stock Trim

From "Curtis Co"

Column cut short to fit another length

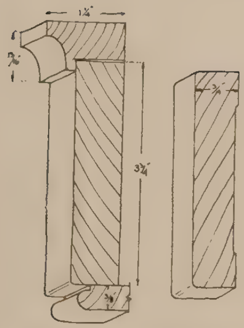


Relics of older days



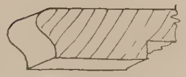
Casing of the type of fifty years ago

The kind of stock trim which some mills continue to keep on hand

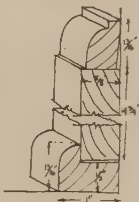


Head Casing Side Casing

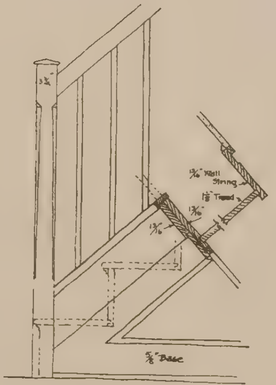
Any Mill will have the above in stock



Window Stool

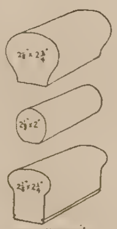


Base Board

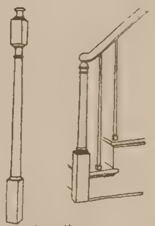


Simple Stair Detail from Stock Material of any Mill

Stock Balusters

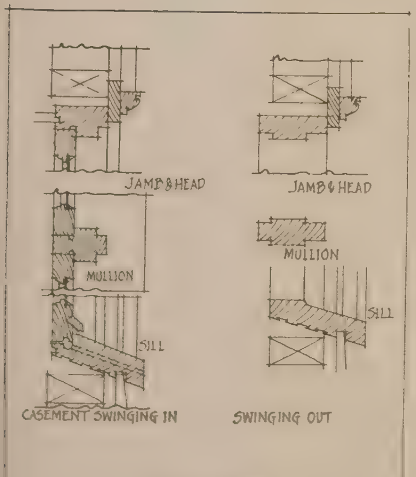


Stock Hand rails

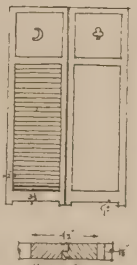


Stock Newels

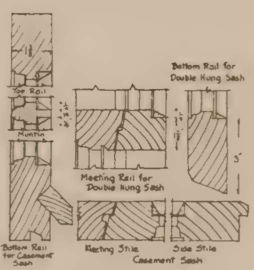
From "Curtis Co"



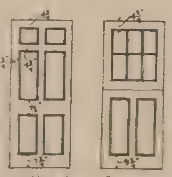
CASEMENT WINDOWS



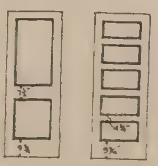
Blinds


Top Rail
Muntin
Bottom Rail for Casement Sash
Meeting Rail for Double Hung Sash
Bottom Rail for Double Hung Sash
3"
Meeting Stile
Side Stile

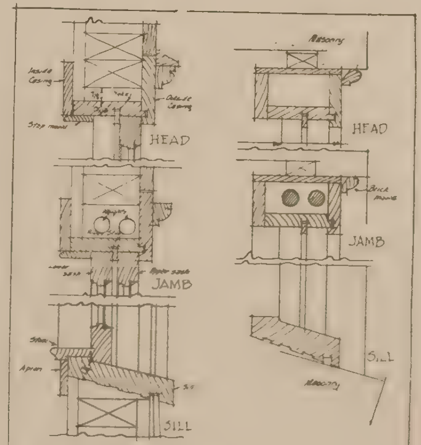
Casement Sash



Stock Exterior Doors



Stock Interior Doors



A GOOD STOCK DOUBLE HUNG WINDOW

FOR FRAME HOUSE FOR MASONRY HOUSE

(*Continued from page 254.*)

thick as 7/16 inch. Such panels consist of three layers, the two outside veneers and the interior softwood core with the grain running at right angles to the veneer. The stiles and rails of well-built veneered doors are made of built-up pine blocks, glued and locked together, with a tongue and groove joint, and fastened at the corners with hardwood dowels. Strips of hardwood to match the veneered face should be placed on each edge of the stiles and rails.

The common stock sizes of doors are as follows:

2 feet by 6 feet
2 feet by 6 feet 6 inches
2 feet by 6 feet 8 inches
2 feet 4 inches by 6 feet 6 inches
2 feet 4 inches by 6 feet 8 inches
2 feet 6 inches by 6 feet 6 inches
2 feet 6 inches by 6 feet 8 inches
2 feet 6 inches by 7 feet
3 feet by 6 feet 8 inches
2 feet 8 inches by 7 feet
3 feet by 6 feet 8 inches
3 feet by 7 feet

The commonest type of window for the small house is equipped with the double-hung sash. This sash should be made of 1⅜-inch white pine, mortised and tenoned at the corners. The meeting rail ought to be rabbeted so that water is prevented from seeping through, and the bottom rail ought also to be rabbeted to fit over a similar rabet in the sill. The size of the lower rail is usually 3 inches wide, the sides and top rails 2 inches wide, and the meeting rail 1⅜ inches wide. It is generally admitted that a window has little architectural charm without muntins, and these are made ¾ inch wide, as a rule. The glass of the window is inserted into the sash frame at least ¼ inch, and its plane is about one-third in from the outside face of the rails. The overall dimensions of a window sash are determined by the size glass used, and as glass is cut in inches, the overall dimensions of a sash will be in fractions of inches. For example, a double-hung sash of twelve lights, each 8 inches by 10 inches, will give a sash opening of 2 feet 4½ inches by 3 feet. If the lights measure 9 inches by 12 inches, then the sash size will be 2 feet 7½ inches by 4 feet 6 inches.

The best type of double-hung window-frame is constructed so that the blind stop is rabbeted to receive the pulley stile, preventing any wind from blowing through. The pulley stiles are usually made of yellow pine, but the outside casing and sills should be of white pine. It is also a good precaution to have the sill rabbeted to receive the ground strip, so that air cannot come underneath the sill. The use of 1 3/16 inch thick material is common for all parts of the frame except the sill, which ought to be 1¾ inches thick. A 2¼-inch depth should be allowed for the weights in the box, and a space of ⅞ inch left between the stud and the top of the frame. Parting strips are made ⅜ inch wide.

Where the frame is to be built into a masonry wall, the back of the weight box is closed in, and a moulding, called the brick mould, should be provided for covering the outside joint between frame and masonry. In order to make this joint tight in hollow-tile construction, it is essential to stuff the back of the brick mould with elastic roofing cement.

There is not much reason to rehearse here the pros and cons of the casement window. When such windows open in, the screens and blinds are easier to handle, but the weather is apt to leak in more. When the sash opens out, screening is difficult, unless some patent operating hardware is used, but the window is more weather-proof. In either case, the difficulty of weathering can be overcome to a large extent by not attempting to keep out the rain, but lead it down and around the sides, draining it off at the sill. This is accomplished by cutting a ¼-inch half-round groove around the sides and in the sill to act as a canal for collecting the water which has seeped in. A few ¼-inch round weep holes from the groove in this sill outward will drain this collection of water off. Casement frames are made of heavier material than those used for double-hung sash, 1¾ inches being common. As the sash is hung from the sides like a door, its weight must not be so great that it will cause it to sag, and for this reason it is customary to limit the width of sash to 2 feet maximum. Some designers believe that the sash should also be at least 1¾ inches thick.

Although blinds add to the cost of the small house without apparently adding practical value, yet they are one of the most useful mediums of securing variation of color on the elevations. In colonial days shutters served to protect the house, and were made solid with only a small hole in them, generally of some ornate cut-out design, like a half-moon, flower-pot, etc. To-day we want slats for ventilation. A good compromise, then, is to make the lower part of slats and the upper part solid, with a cut-out design. The stiles and rails of the shutter are made of 1⅛-inch material, the bottom rail being 3½ inches wide, the stiles and top rails 2 inches wide. Intermediate rails are often made 2½ inches wide. It is best to project the stile 1 inch below the bottom of the lower rail, so that water collecting on the sill can drain off underneath the blind.

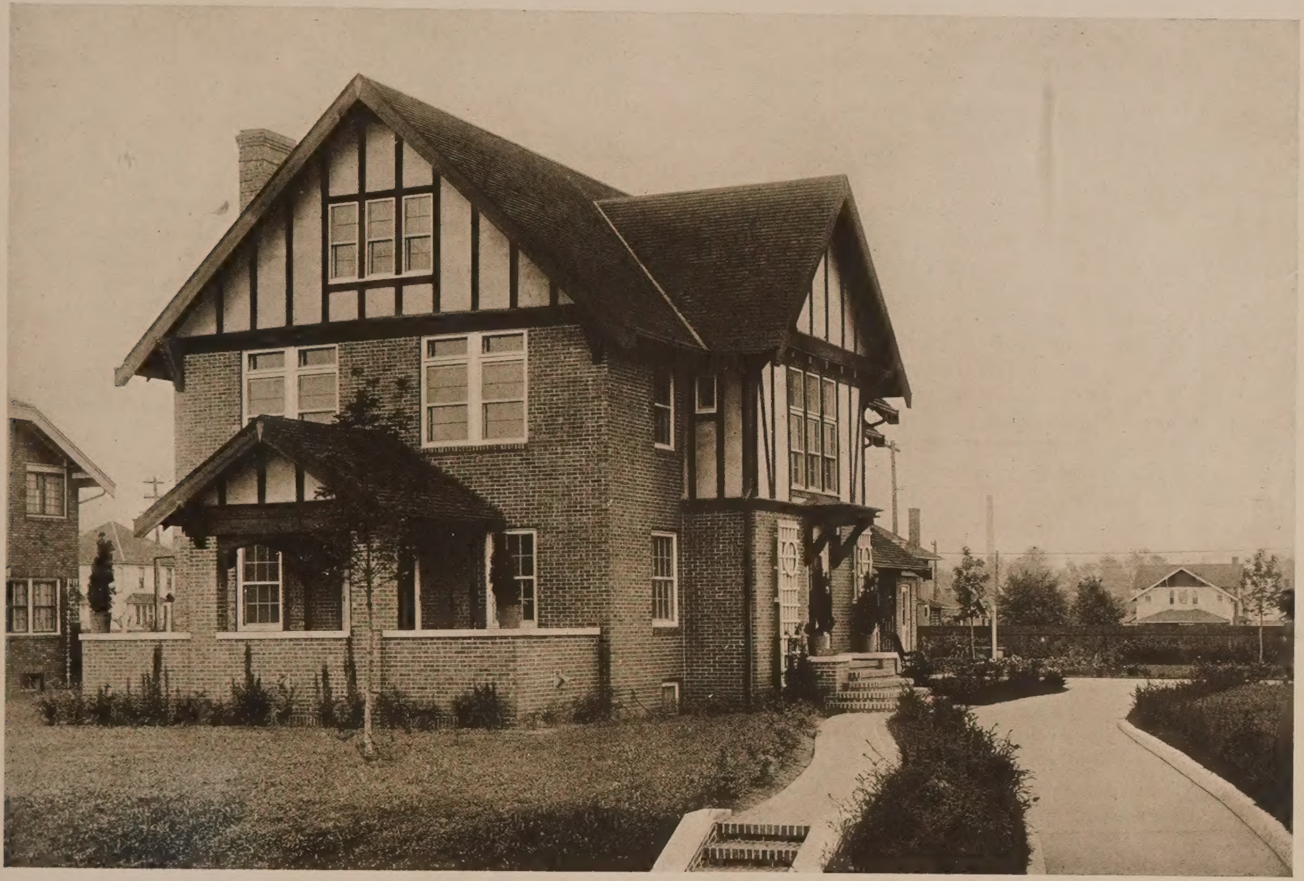
In addition to the blinds, the window should be equipped with screens. These should be of copper, for only this material is economical in the long run. They are usually made of ¾-inch material, and the lower rail, stiles, and top rail made 1¾ inches wide.

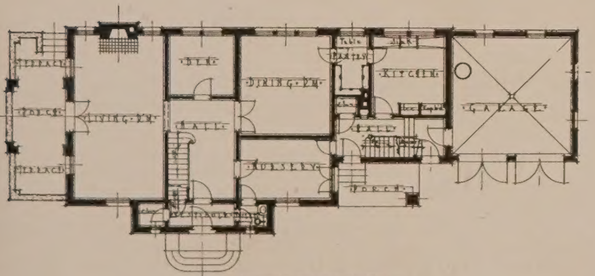
Other mill work of the exterior, such as porch columns, rails, etc., ought to be built up from stock mouldings and patterns. There are numerous concerns selling well-designed wooden columns. The great danger of using stock columns, however, is in the fitting. Certain stock lengths are made with well-planned entasis, but if the design calls for an intermediate length the column is cut short, which destroys its proportions. On this basis, many select square columns, or thin wooden columns without much entasis. The illustrations show some common stock sizes for other outside trim such as lattice, top rails, bottom rails, balusters, etc.

Of the interior mill work the stairs are the most important. For the small house they should be very simple, not only for economy but for appearance. Plain round and square balusters, 1 3/16 inches, and two to a tread, simple hand-rail and simple newel post, 3¾ inches, are more effective than elaborately turned members. The height of the hand-rail from the top of the tread to the hand-rail on a line with the face of the riser should be 2 feet 6 inches. The slope of the stairs should preferably be confined between 30 degrees and 35 degrees, and the common proportion between tread and riser should be maintained (tread and riser = 17½ inches).

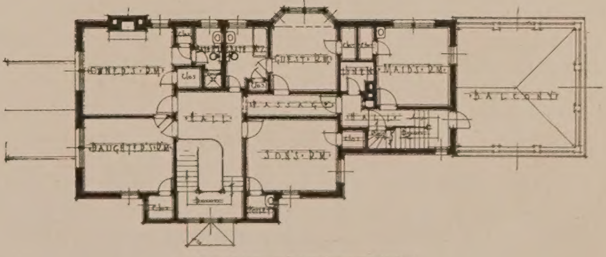
The treads should be of 1⅛-inch hardwood, and the risers of 1 3/16 inch softwood, rabbeted into the riser. Outside strings ought to be ⅝ inch thick where finishing on a ⅝-inch base. Inside strings should be 1 3/16 inches thick. Enclosed stairs between walls should have strings fitted down on treads and risers, but elsewhere inside strings should be rabbeted for treads and risers. Newels should be housed out over supports.

A feature of the small house which is neglected too much is the installation of built-in furniture. There is a substantial quality about such furniture which no mobile furniture can possess. The bookcase built into the wall, the window-seat permanently a part of the room, a charming mantel-piece, good panelling, built-in china-closets, tables and benches in the breakfast alcove, a modern kitchen dresser with the equipment of a portable cabinet, dressing-tables and closet shelves and drawers, medicine-cases and radiator enclosures are features which add so much to the small house that it seems strange that they are so often omitted. Many a speculative builder has realized the value of such furniture and sold his house upon the attractiveness of it. He knows that the young couple who purchases the small house usually comes from the small apartment, and has little furniture to spare. Here then is a place to spend money and not to economize.





FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE AND PLANS, WILL H. WADE, INDIANAPOLIS, IND.

Bass, Knowlton & Graham, Architects.

The High Price of Gothic

By G. E. Mathews

Head of Architectural Department of Hoggson Brothers, New York

IN view of the fact that a number of office-buildings and other business buildings have been recently designed in Gothic style, and that the adaptation of this style to certain of these buildings has produced a result which has received the highest commendation not only from the public but from architectural critics, the question often arises why this style is not more generally used for banking work, instead of the more familiar classic design.

There is no question but that a beautiful and thoroughly satisfactory building can be produced in Gothic, providing it is designed by an architect who is particularly trained in that style and sufficiently familiar with the characteristic details to be used. This is, of course, true in either the classic or Gothic styles, but it works peculiarly to the disadvantage of the Gothic, because a very small percentage of the work now done is Gothic. Comparatively few architects use it for their buildings, and consequently few workmen become familiar with its detail.

This operates to both lessen the chance of a satisfactory result in design and also to increase the cost of the building. At the same time unless the architect is able to incorporate some particularly striking effect which will at once mark the building as a bank, the general effect and the impression on the public will be that of a church, because Gothic design is now associated with religious or educational buildings, while the classic styles are associated with business and civic buildings.

In all successful buildings the use of the building and its architecture should be in absolute harmony. This is strikingly shown in the Woolworth Tower, where the Gothic spirit and detail has been admirably incorporated into a sky-scraper. Modern banking practice, however, requires light and spacious business rooms, which leads to the use of classic design with its large window openings and wide spaces rather than the pointed windows, heavy piers, and vaulted ceilings which are associated with Gothic design. As a consequence, should the bank architect attempt to use the Gothic style in the construction of his buildings, it would probably result not in a Gothic building at all but in Gothic details applied to a building constructed along classic lines.

One must recognize that an architect who thinks in Gothic, having at his disposal plenty of money and time and skilled workmen (for all three would be necessary), could produce a most striking and successful bank building. Yet under modern conditions the classic style seems to be the most satisfactory. As a matter of fact, that such a beautiful style as the Gothic is neglected proves either that we do not know how to use it, or that it is not a style adapted to our times, except chiefly for the design of educational and religious edifices.

Announcements

COMPETITION IN MURAL PAINTING.—The Art Institute, of Chicago, announces that the *Chicago Tribune* has offered to the Institute School a competitive prize which is regarded as one of the greatest and most important ever offered in an art contest in America.

In seeking for the best possible decoration for the "local" room, the largest in the new Tribune plant on North Michigan Boulevard, Chicago, the paper evolved the plan of securing its design through the school of the Art Institute. In accordance with this idea the *Tribune* offers, in open competition, to all students in the Art Institute School, a prize of $5,000 for the best and most acceptable mural decoration for this room. Full details of the contest will be announced in good time for all prospective competitors. Students entering school in September, 1921, will be eligible as contestants.

Mr. Kuehn, who has been practising architecture for the last twelve years in Huron, S. D., has established a partnership with Mr. Earl Walsh.

Mr. Walsh has been with Mr. Kuehn for the past two seasons as draftsman, and this year completed a course in architectural engineering in the University of Illinois.

The firm hereafter will be known as Kuehn & Walsh, Architects and Engineers, with offices in Rooms 7 and 8, City National Bank Building, Huron, S. D.

Mr. Sidney H. Minchin has severed his connections with the firm of Minchin & Weller, Inc., formerly located at Marquette Building, Chicago, and has joined Mr. Alexander H. Spitz. Both architects are to continue the practice of their profession under the firm name of Minchin, Spitz & Co., Architects and Engineers, at their new location on the second floor of the Sears Building, 19 West Jackson Boulevard, Chicago, Ill. Mr. Paul L. Francescon will be associated with the firm.

Mr. Alexander H. Spitz, architect and engineer, announces his removal from 105 West Monroe Street to 19 West Jackson Boulevard.

Edwin F. Simpson announces that Rolland L. Githens has withdrawn from the firm of Simpson & Githens, and that he will continue the practice under the name of Edwin F. Simpson, Architect, with offices at 869 Reibold Building, Dayton, Ohio.

Willard C. Brinton, president of the Terminal Engineering Company, Inc., manufacturers of the Tec Truck and varied material handling machinery, makes the following announcements:

J. F. McGonigal, mechanical engineer, formerly of the Foamite Company, and J. H. Potter, mechanical engineer, a graduate of New York University, have joined the organization.

M. E. Lyle, for many years with the Columbia Graphophone Company, has been elected a vice-president, and is directly responsible for new business.

M. E. Peck has been elected secretary and asisstant treasurer.

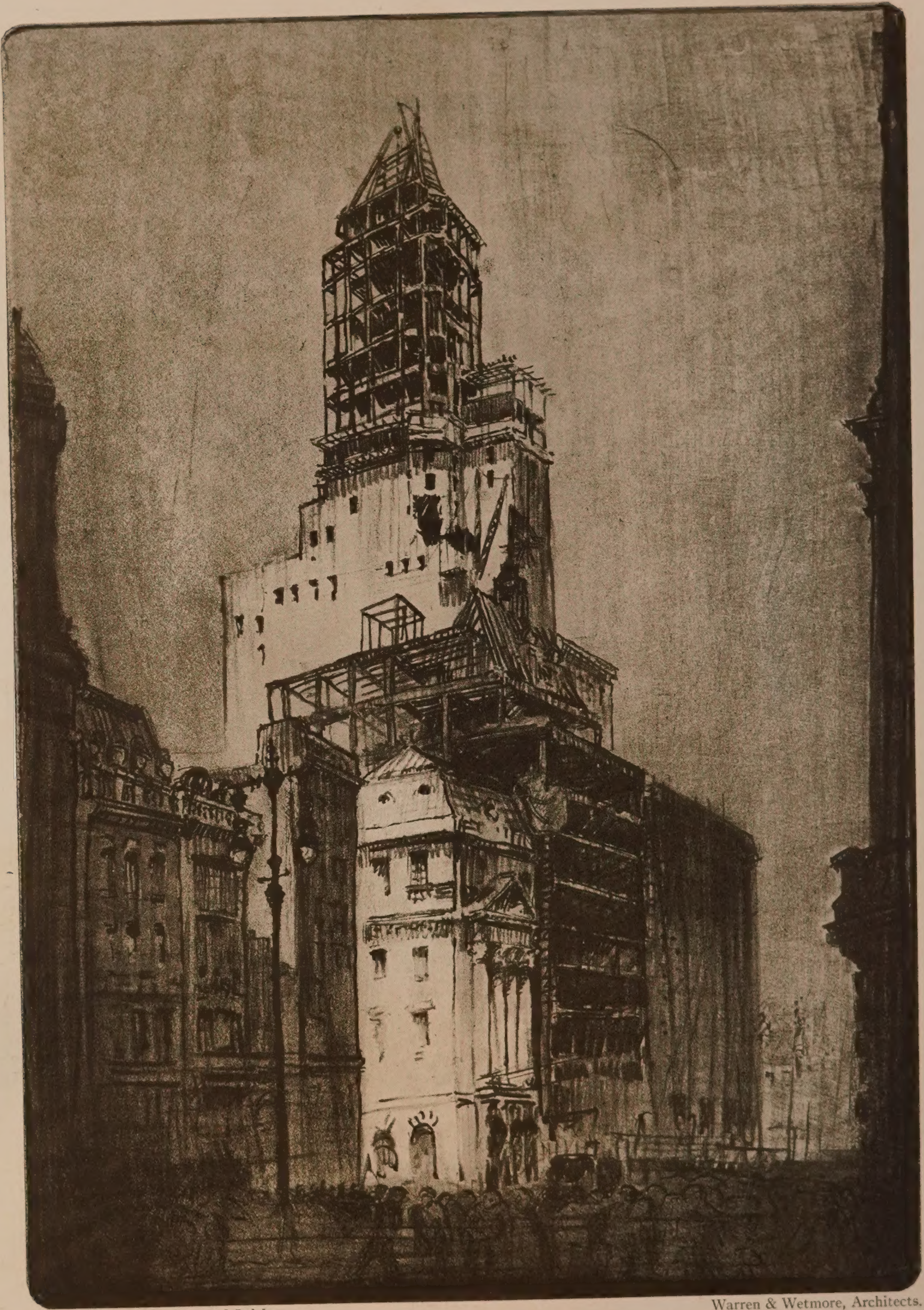
Book Review

ITALIAN RENAISSANCE FURNITURE. By WILLIAM VON BODE. Translated by Mary E. Herrick. With 134 illustrations. William Helburn, Inc., New York.

The very wide interest always manifested in Italian Renaissance furniture and the comparatively few books existing on the subject makes Miss Herrick's translation of Doctor Bode's book a timely addition to this literature.

The text and the illustrations of the book have been arranged with reference to periods and schools. The plates enable one to trace both local differences and general underlying similarity. For instance, the reader may examine Tuscan types in one place, Ligurian in another, and Umbrian in a third division, and so on throughout the entire book. This arrangement is convenient for comparison and analysis, and will be found one of its most valuable features.

The subject is comprehensively treated by Doctor Bode, and the many illustrations will be found especially helpful for the student and the amateur, and should prove interesting to furniture manufacturers, architects, and decorators.



From a Lithograph by Howard Leigh.

Warren & Wetmore, Architects.

THE HECKSCHER BUILDING, FIFTH AVENUE AND 57TH STREET, NEW YORK.